SERVICE MANUAL

Self Diagnosis Supported model

BA-5 CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.
KV-13FM12	RM-Y172	US	SCC-S40H-A
KV-13FM12	RM-Y172	CND	SCC-S41H-A
KV-13FM13	RM-Y172	US	SCC-S40L-A
KV-13FM14	RM-Y172	US	SCC-S40J-A
KV-14FM12	RM-Y172	E	SCC-S38M-A
KV-14FM12A	RM-Y172	E	SCC-S38N-A
KV-14FM12C	RM-Y172	E	SCC-S38P-A
KV-14FM14	RM-Y172	E	SCC-S38S-A

SONY®

SPECIFICATIONS

		KV-13FM12 KV-13FM13 KV-13FM14	KV-14FM12 KV-14FM12A KV-14FM12C KV-14FM14
Power requirements		120V, 60Hz	120-220V, 50/60Hz
Number of inputs/outputs			
	Video [1]	2	2
	Audio [2]	2	2
	Headphone Out	1	1
Speaker output(W)		3W	3W
Power Consumption(W)			
	In use(Max)	80W	85W
	In standby	1W	1W
Dimensions(W/H/D)			
	(mm)	450 x 338 x 438 mm	450 x 338 x 438 mm
	(in)	17 3/4 x 13 3/8 x 17 1/4	17 3/4 x 13 3/8 x 17 1/4
Mass			
	(kg)	12 kg	12 kg
	(lbs)	26 lbs. 7 oz.	26 lbs. 7 oz.

1) 1 Vp-p 75 ohms unbalanced, sync negative
2) 500mVrms (100% modulation), impedance: 47kilohms

Television system

American TV standard/NTSC
PAL M, N (KV-14FM12A ONLY)

Channel coverage

VHF:2-13/UHF:14-69/CATV:1-125

Visible screen size

13” picture measured diagonally

Actual screen size

14” picture measured diagonally

Antenna

75 ohm external antenna terminal for VHF/UHF

Supplied accessories

Remote Commander RM-Y172
Size AA (R6) batteries (2)

Design and specifications are subject to change without notice.

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WARNINGS AND CAUTIONS

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS, AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION!!

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RESQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNEIMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONTIONNEMENT SUSPECTE.

SELF-DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER LED will automatically begin to flash. The number of times the LED flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER LED flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the Remote Commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

Diagnostic Test Indicators

When an error occurs, the STANDBY/TIMER LED will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the LED will identify the first of the problem areas.

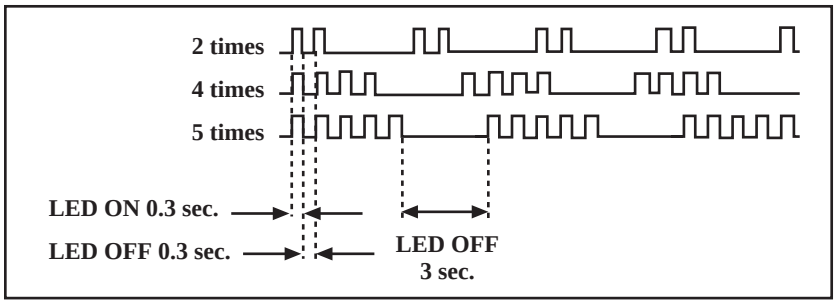
Results for all of the following diagnostic items are displayed on screen. No error has occurred if the screen displays a "0".

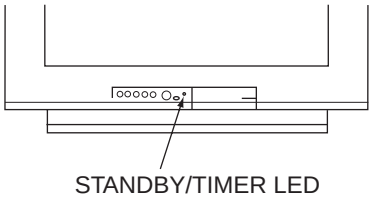
Diagnostic Item Description	No. of Times STANDBY/TIMER LED Flashes	Self-diagnostic Display/ Diagnostic Result	Probable Cause Location	Detected Symptoms
Power does not turn on	Does not light	———	• Power cord is not plugged in. • Fuse is burned out. (F601) (A Board)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
+B overcurrent (OCP)*	2 times	2:0 or 2:1	• H.OUT (Q502) is shorted. (A Board) • IC702 is shorted. (CB Board)	• Power does not come on. • Load on power line is shorted.
I-Prot*	4 times	4:0 or 4:1	• +13V is not supplied. (A Board) • IC502 is faulty. (A Board)	• Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
IK	5 times	5:0 or 5:1	• Video OUT (IC502) is faulty. (A Board) • IC1301 is faulty. (MB Board) • Screen (G2) is improperly adjusted.**	• No raster is generated. • CRT cathode current detection reference pulse output is small.

* If a +B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously. The symptom that is diagnosed first by the microcontroller is displayed on the screen.

** Refer to Screen (G2) Adjustments in Section 3-4 of this manual.

Display of Standby/Timer LED Flash Count





Diagnostic Item	Flash Count*
+B overcurrent	2 times
I-Prot	4 times
IK	5 times

*One flash count is not used for self-diagnostic.

Stopping the Standby/Timer LED Flash

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER LAMP from flashing.

Self-Diagnostic Screen Display

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurrences of failure on the screen for confirmation.

To Bring Up Screen Test

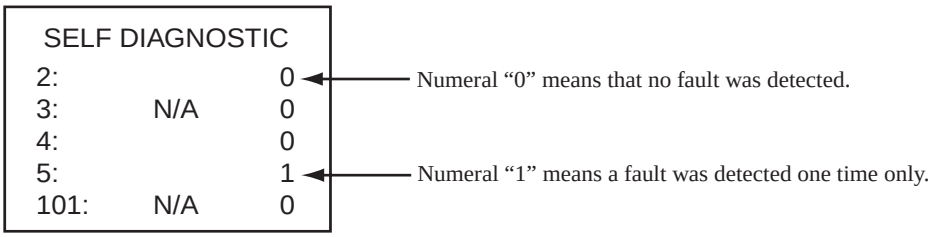
In standby mode, press buttons on the Remote Commander sequentially, in rapid succession, as shown below:

Display → Channel 5 → Sound volume − → Power ON

⇧

Note that this differs from entering the service mode (sound volume +).

Self-Diagnostic Screen Display


SELF DIAGNOSTIC
2: 0
3: N/A 0
4: 0
5: 1
101: N/A 0
Numeral “0” means that no fault was detected.
Numeral “1” means a fault was detected one time only.

Handling of Self-Diagnostic Screen Display

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to "0".

Unless the result display is cleared to "0", the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

Clearing the Result Display

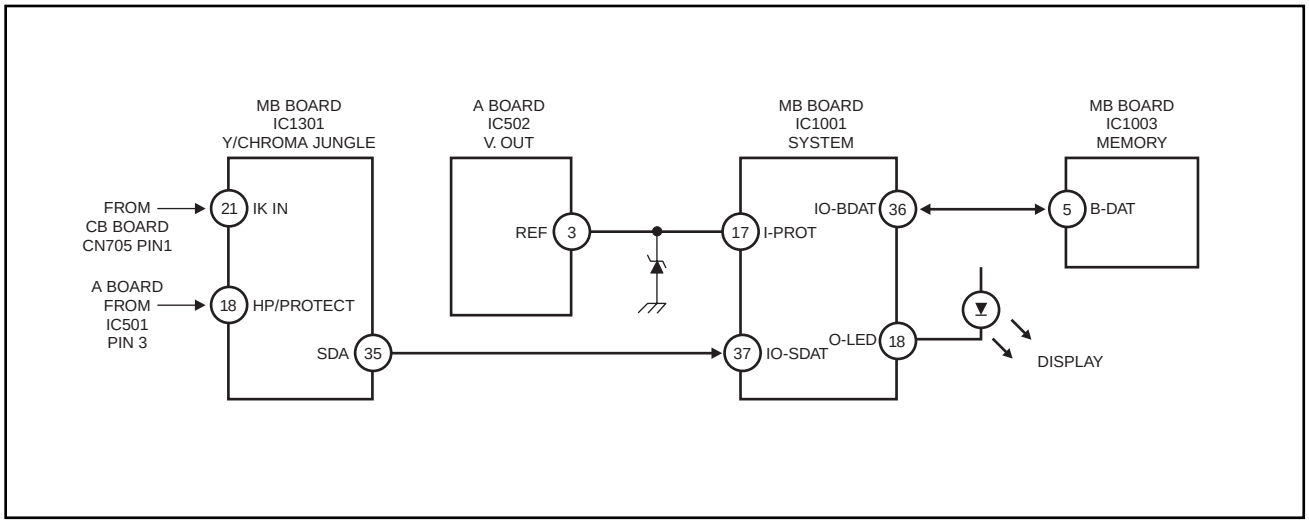
To clear the result display to "0", press buttons on the Remote Commander sequentially when the diagnostic screen is displayed, as shown below:

Channel [8] ➡ [ENTER]

Quitting the Self-Diagnostic Screen

To quit the entire self-diagnostic screen, turn off the power switch on the Remote Commander or the main unit.

Self-Diagnostic Circuit



+B overcurrent (OCP) — Occurs when an overcurrent on the +B (135V) line is detected by pin 18 of IC1301 (MB Board). If the voltage of pin 18 of IC1301 (MB Board) is less than 1V when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.

I-Prot — Occurs when an absence of the vertical deflection pulse is detected by pin 17 of IC1001 (MB Board). Power supply will shut down when waveform interval exceeds 2 seconds.

IK — If the RGB levels* do not balance within 2 seconds after the power is turned on, this error will be detected by IC1301 (MB Board). TV will stay on, but there will be no picture.

*(Refers to the RGB levels of the AKB detection Ref pulse that detects 1K).

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or touching high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63TRD are examples of passive VOMs that are suitable. Nearly all battery-operated digital multimeters that have a 2 VAC range are suitable (see Figure A).

How to Find a Good Earth Ground

A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60- to 100-watt trouble- light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure B).

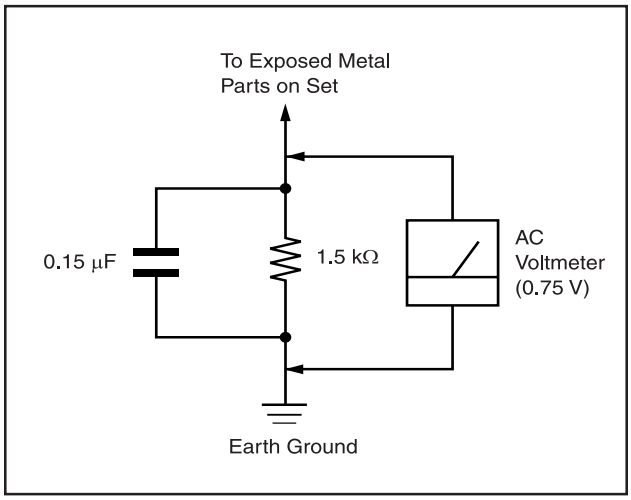


Figure A. Using an AC voltmeter to check AC leakage.

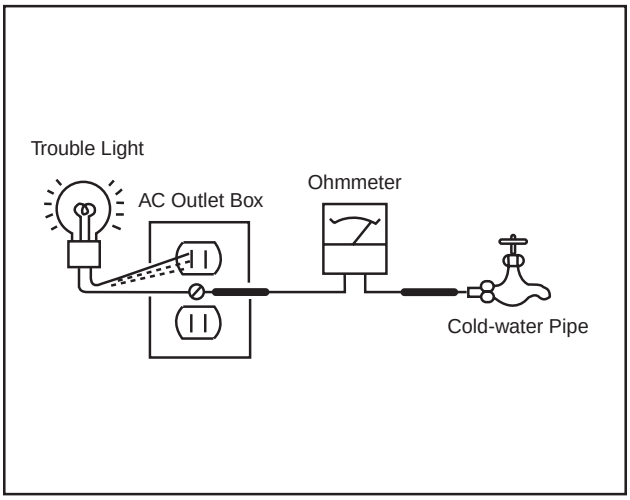


Figure B. Checking for earth ground.

The instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers shown reflect those of the Operating Instruction Manual.

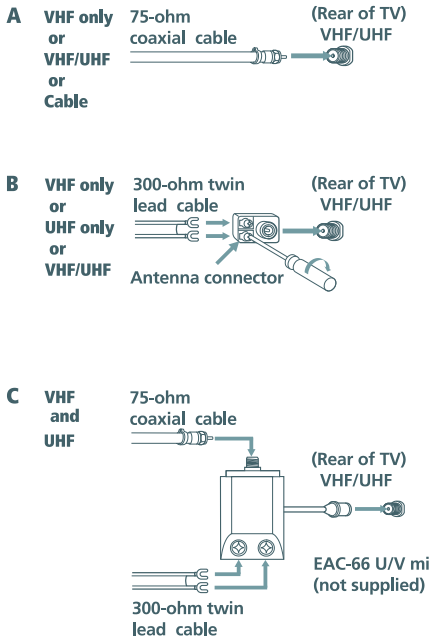
Connecting Your TV

Read this section before setting up your TV for the first time. This section covers basic connections in addition to any optional equipment you may be connecting.

Basic Connections

TV with indoor or outdoor antenna, or CATV cable

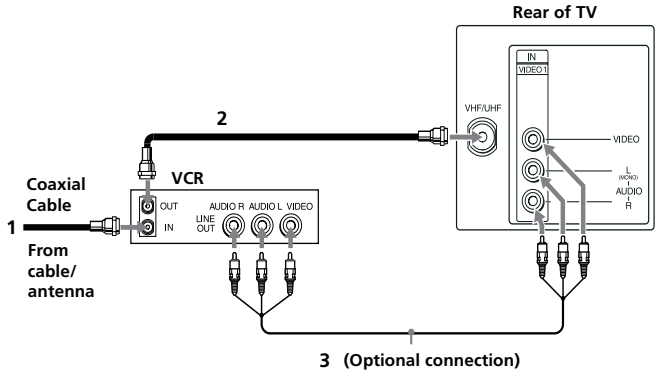
Depending on the cable available in your home, choose one of the connections below:



If you are connecting to an indoor or outdoor antenna, you may need to adjust the orientation of the antenna for best reception.

Connecting Additional Equipment

TV and VCR



1 Connect the coaxial cable from your TV antenna or cable service to the IN jack on your VCR.

2 Connect a coaxial cable (not supplied) from the OUT jack on your VCR to the VHF / UHF jack on the TV.

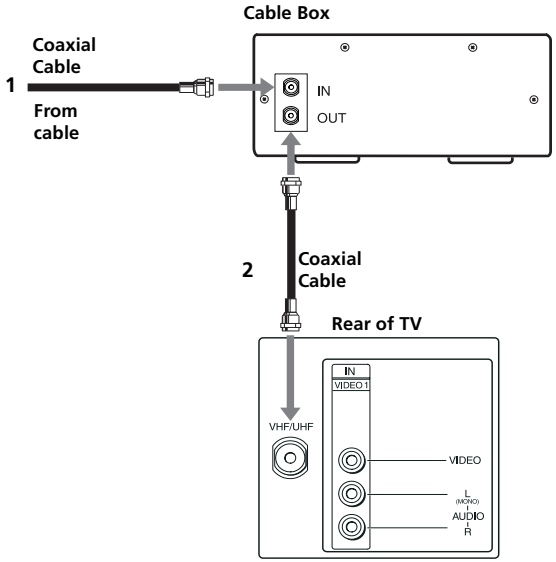
To watch video programs from your VCR, tune your TV to channel 3 or 4 (as set on the rear of your VCR).

(Optional connection)

3 If your VCR is equipped with video outputs, you can get better picture quality by connecting A / V cables (not supplied) from AUDIO and VIDEO OUT on your VCR to AUDIO / VIDEO IN on your TV.

You can use the TV/VIDEO button to switch between the VHF/UHF and VIDEO inputs.

TV and Cable Box



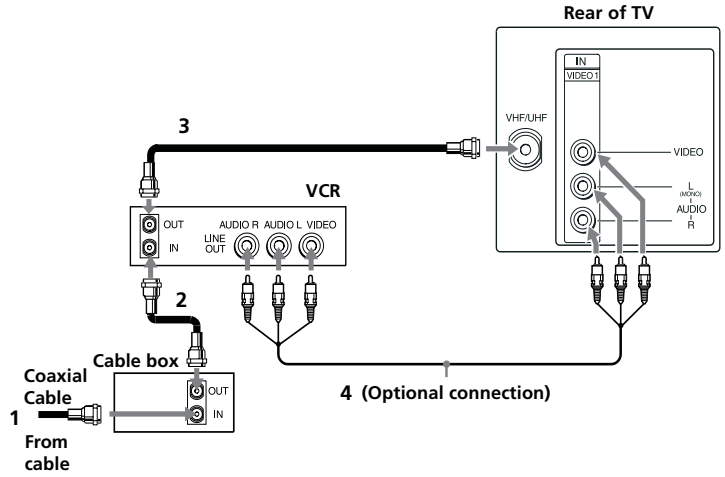
1 Connect the coaxial cable from your cable service to the IN jack on your cable box.

2 Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the VHF / UHF jack on the TV.

To view channels from your cable box, tune your TV to channel 3 or 4 (as set on the rear panel of your cable box) and use the cable box's remote control to change channels.

If you will be controlling all channel selection through your cable box, you should consider using the Channel Fix feature, (see page 19).

TV, VCR, and Cable box



1 Connect the coaxial cable from your cable service to the IN jack on your cable box.

2 Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the IN jack on your VCR.

3 Connect a coaxial cable (not supplied) from the OUT jack on your VCR to the VHF / UHF jack on the TV.

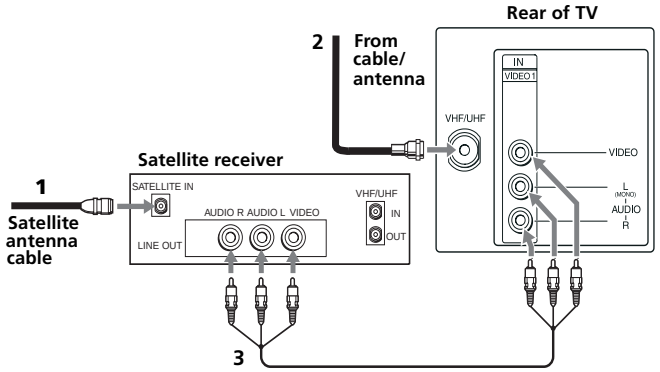
If you will be controlling all channel selection through your cable box, you should consider using the Channel Fix feature, (see page 19).

(Optional connection)

4 If your VCR is equipped with video outputs, you can get better picture quality by connecting A / V cables (not supplied) from AUDIO and VIDEO OUT on your VCR to AUDIO / VIDEO IN on your TV.

You can use the TV/VIDEO button to switch between the VHF/UHF and VIDEO inputs.

TV and Satellite Receiver



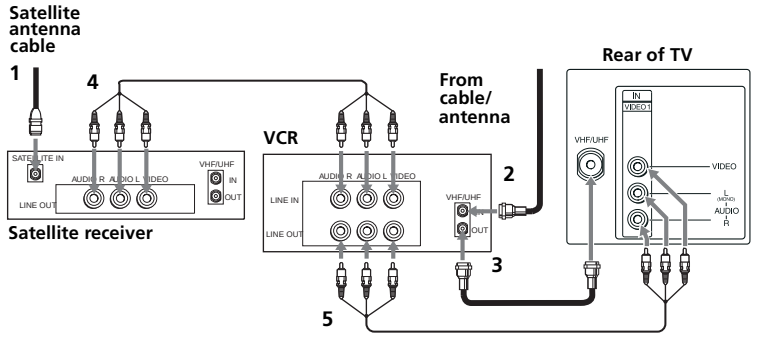
1 Connect the cable from your satellite antenna to SATELLITE IN on your satellite receiver.

2 Connect the coaxial cable from your cable service or antenna to the VHF / UHF jack on your TV.

3 Using A / V cables, connect AUDIO and VIDEO OUT on your satellite receiver to AUDIO and VIDEO IN on your TV.

You can use the TV/VIDEO button to switch between the VHF/UHF and VIDEO inputs.

TV, Satellite Receiver, and VCR



1 Connect the cable from your satellite antenna to SATELLITE IN on your satellite receiver.

2 Connect the coaxial cable from your cable service or antenna to the IN jack on your VCR.

3 Using a coaxial cable, connect the OUT jack on your VCR to the VHF / UHF jack on your TV.

4 Using A / V cables, connect AUDIO and VIDEO OUT on your satellite receiver to AUDIO and VIDEO IN on your VCR.

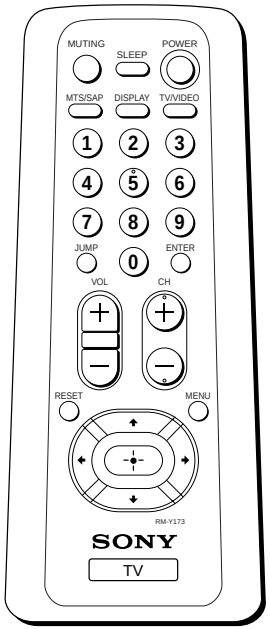
5 Using A / V cables, connect AUDIO and VIDEO OUT on your VCR to AUDIO and VIDEO IN on your TV.

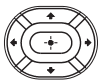
To view from the satellite receiver or VCR, select the video input to which your VCR is connected by pressing TV/VIDEO on the remote control.

Using the Remote Control and Basic Functions

This section shows you how to use the more advanced buttons on the remote control and how to use the on-screen menus.

Using the Remote Control



Button	Description
POWER	Press when you want to turn the TV on and off.
MUTING	Instantly turns off the sound. Press again or press VOL + to restore sound.
TV/VIDEO	Cycles through available video inputs.
	Moves the cursor in the on-screen menus. Press the arrow buttons to move the cursor. Press the center button to select or access an option.
SLEEP	Turns the TV off automatically in approximately 15, 30, 45, 60, or 90 minutes. Cancel by pressing until SLEEP OFF appears.
MTS/SAP	Cycles through the Multi-channel TV Sound (MTS) options: Stereo, Mono, and Auto-SAP (Second Audio Programming) (KV-21FE12 models only).
DISPLAY	Press to display the current time, (if set) and channel number.
JUMP	Alternates between the last two channels selected with the 0-9 buttons.

The remote control illustrated (RM-Y173) is for KV-21FE12 models. For KV-21FM12 and KV-14FM12 models, your remote control does not have the MTS/SAP button.

(Continued)

MENU	Displays the on-screen menu. Press again to exit the menu at any time.
RESET	Press to return to factory settings while in an on-screen menu.

Other Information

Troubleshooting

If you are having a problem with your TV, try the suggestions below. If the problem persists, contact your nearest Sony dealer.

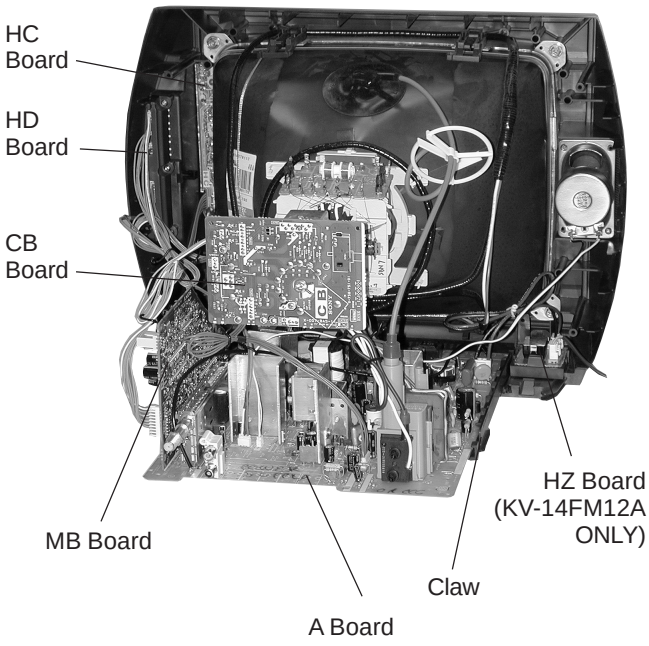
No picture, no sound	❑ Make sure the power cord is plugged in. ❑ If a red light is flashing on the front of your TV for more than a few minutes, disconnect and reconnect the power cord to restore the TV. If the problem continues, call your local service center. ❑ Check the TV / VIDEO settings: when watching TV, set to TV; when watching video equipment, set to VIDEO (page 11). ❑ Make sure the batteries have been inserted correctly into the remote control. ❑ Try another channel, it could be station trouble.
Poor or no picture, good sound	❑ Adjust Picture in the Video menu (page 17). ❑ Adjust Brightness in the Video menu (page 17). ❑ Check the antenna and / or cable connections (page 3).
Good picture, no sound	❑ Press MUTING ◯ so that MUTING disappears from the screen (page 11). ❑ Check your Audio settings. Your TV may be set to Auto-SAP (page 18).
No color	❑ Adjust Color in the Video menu (page 17).
No signal	❑ Check the Cable setting in the Options menu under Setup (page 23). ❑ Check the antenna and / or cable connections (page 3). ❑ Make sure the channel selected is currently broadcasting.
Dotted lines or stripes	❑ Adjust the antenna. ❑ Move the TV away from other electronic equipment. Some electronic equipment can create electrical noise, which can interfere with TV reception.
Double images or ghosts	❑ Check your outdoor antenna or call your cable service.

Cannot receive higher number channels (UHF) when using an antenna	❑ Make sure Cable is set to OFF in the Options menu under Setup (page 23). ❑ Perform Auto Program to add channels that are not presently in the memory (page 23).
Cable stations don't seem to work	❑ Make sure Cable is set to ON in the Options menu under Setup (page 23). ❑ Perform Auto Program to add channels that are not presently in the memory (page 23).
Remote control does not operate	❑ Batteries could be weak. Replace them (page 2). ❑ Move the TV 3-4 feet or more away from fluorescent lights.
The TV needs to be cleaned	❑ Clean the TV with a soft dry cloth. Never use strong solvents such as thinner or benzine, which might damage the finish of the cabinet.

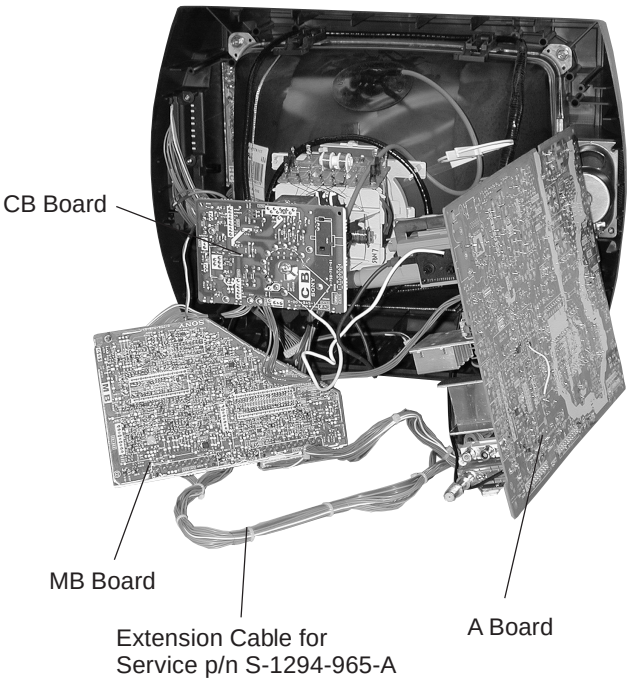
SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

2-2. CHASSIS ASSEMBLY REMOVAL



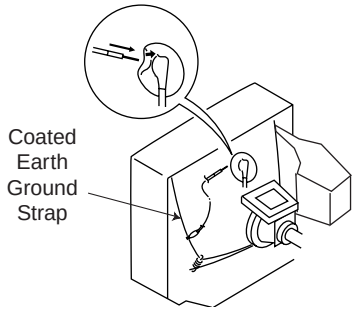
2-3. SERVICE POSITION

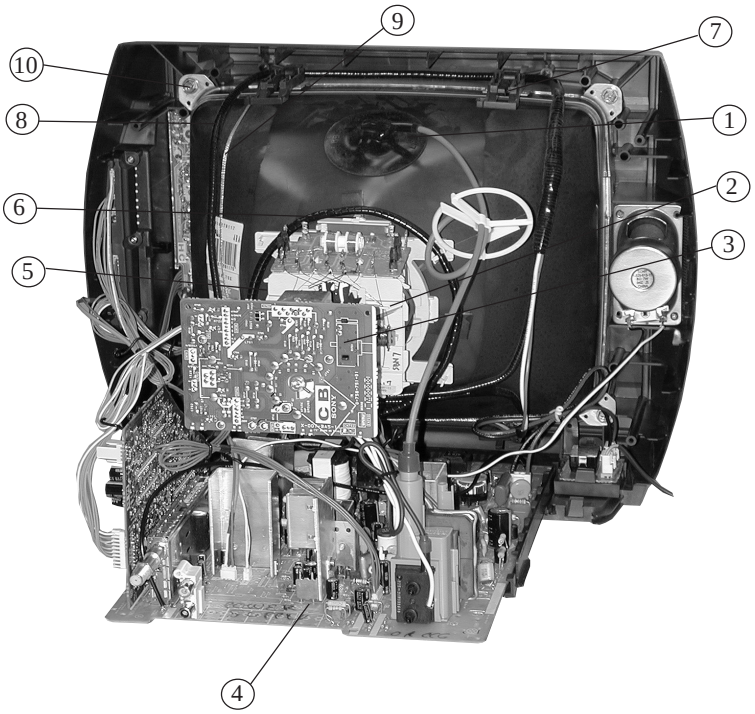


2-4. PICTURE TUBE REMOVAL

WARNING:
BEFORE REMOVING THE ANODE CAP

High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT ***before*** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.





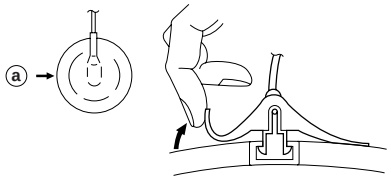
1. Discharge the anode of the CRT and remove the anode cap.
2. Unplug all interconnecting leads from the deflection yoke, neck assembly, degaussing coils and CRT grounding strap.
3. Remove the CB Board from the CRT.
4. Remove the chassis assembly.
5. Loosen the neck assembly fixing screw and remove.
6. Loosen the deflection yoke fixing screw and remove.
7. Place the set with the CRT face down on a cushion and remove the degaussing coil holders.
8. Remove the degaussing coils.
9. Remove the CRT grounding strap and spring tension devices.
10. Unscrew the four CRT fixing screws [located on each CRT corner] and remove the CRT [Take care not to handle the CRT by the neck].

ANODE CAP REMOVAL

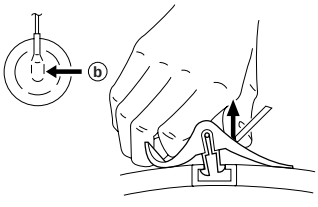
WARNING: High voltage remains in the CRT even after the power is disconnected. To avoid electrical shock, discharge the CRT **before** attempting to remove the anode cap. Short between anode and coated earth ground strap of CRT.

NOTE: After removing the anode, short circuit the anode of the picture tube and the anode cap to either the metal chassis, CRT shield, or carbon painted on the CRT.

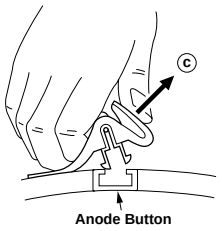
REMOVAL PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by arrow ⓐ.



② Use your thumb to pull the rubber cap firmly in the direction indicated by arrow ⓑ.



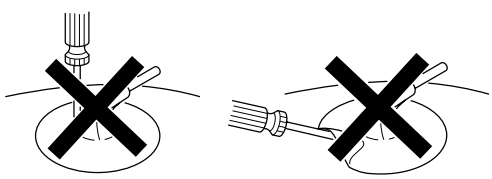
③ When one side of the rubber cap separates from the anode button, the anode cap can be removed by turning the rubber cap and pulling it in the direction of arrow ⓒ.

HOW TO HANDLE AN ANODE CAP

① Do not use sharp objects which may cause damage to the surface of the anode cap.

② To avoid damaging the anode cap, do not squeeze the rubber covering too hard. A material fitting called a shatter-hook terminal is built into the rubber.

③ Do not force turn the foot of the rubber cover. This may cause the shatter-hook terminal to protrude and damage the rubber.



SECTION 3
SET-UP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or when a new picture tube is installed.

These adjustments should be performed with rated power supply voltage unless otherwise noted.

Set the controls as follows unless otherwise noted:

VIDEO MODE: STANDARD
PICTURE control: ..... Normal
BRIGHTNESS control: ..... Normal

Perform the adjustments in order as follows:
1. Beam Landing
2. Convergence
3. Focus
4. Screen (G2)
5. White Balance

Note: Test equipment required:
- Color Bar Pattern Generator
- Degausser
- DC Power Supply
- Digital Multimeter

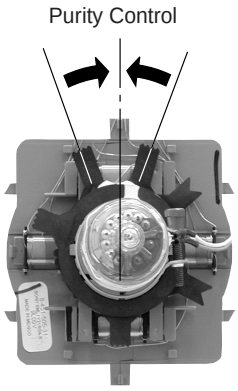
3-1. BEAM LANDING

Before beginning adjustment procedure:

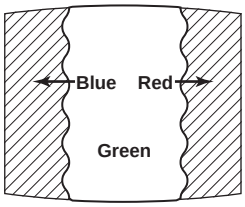
1. Degauss the entire screen.
2. Feed in the white pattern signal.

Adjustment Procedure

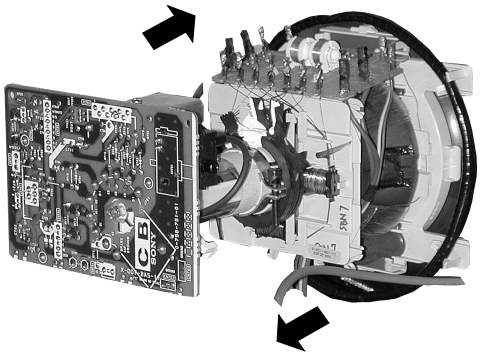
1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw and set the purity control to the center as shown below.



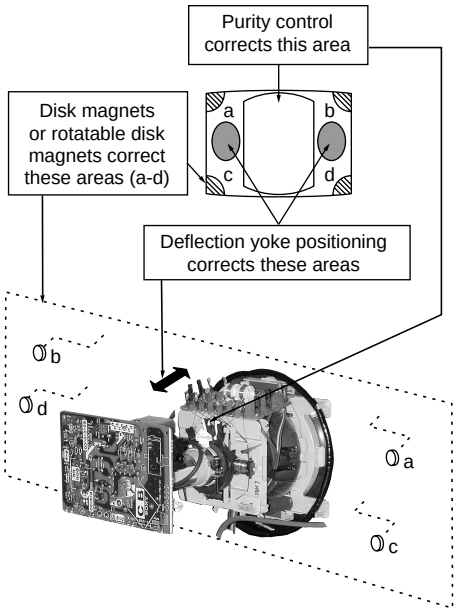
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward and adjust the purity control so that green is in the center and red and blue are at the sides evenly.



5. Move the deflection yoke forward and adjust so that the entire screen becomes green.



6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. If landing at the corner is not right, adjust by using the disk magnets.



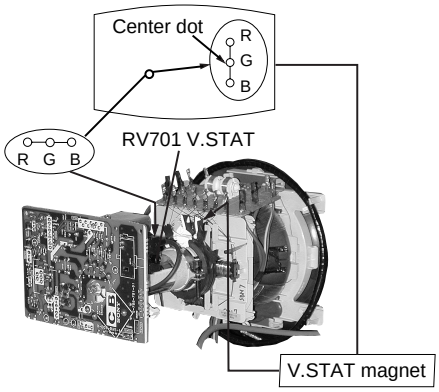
3-2. CONVERGENCE

Before starting convergence adjustments:

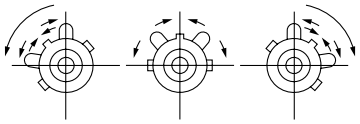
1. Perform FOCUS, V.LIN AND V.SIZE adjustments.
2. Set BRIGHTNESS control to minimum.
3. Feed in dot pattern.

Vertical Static Convergence

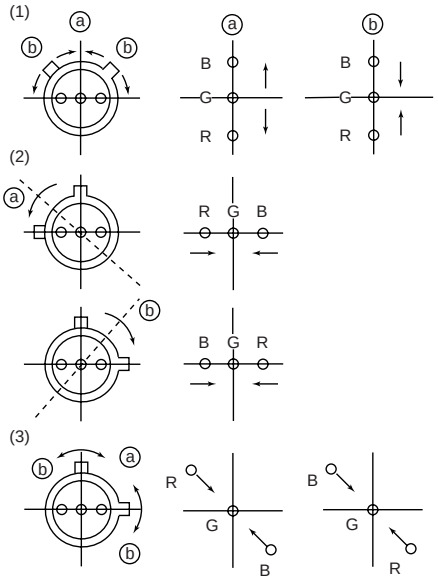
1. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen (Vertical movement adjust V.STAT RV to converge).



2. Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



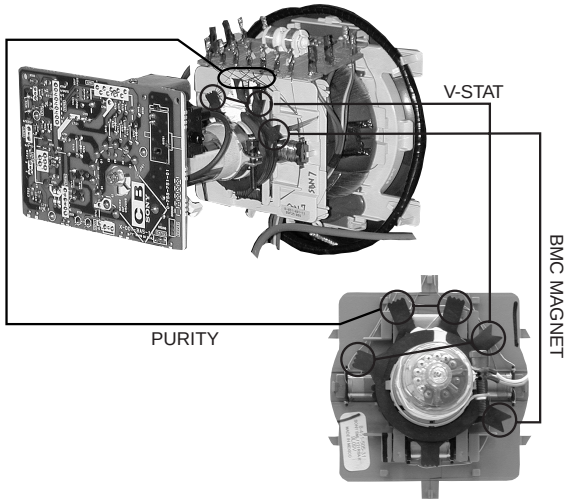
When the V.STAT magnet is moved in the direction of arrows a and b, red, green, and blue dots move as shown below:

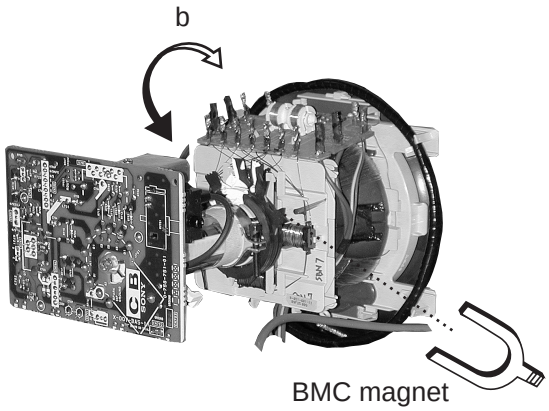


Horizontal Static Convergence

If the blue dot does not converge with the red and green dots, perform the following:

1. Move BMC magnet (a) to correct insufficient H. Static convergence.
2. Rotate BMC magnet (b) to correct insufficient V. Static convergence.
3. After adjusting the BMC magnet, repeat Beam Landing Adjustment.

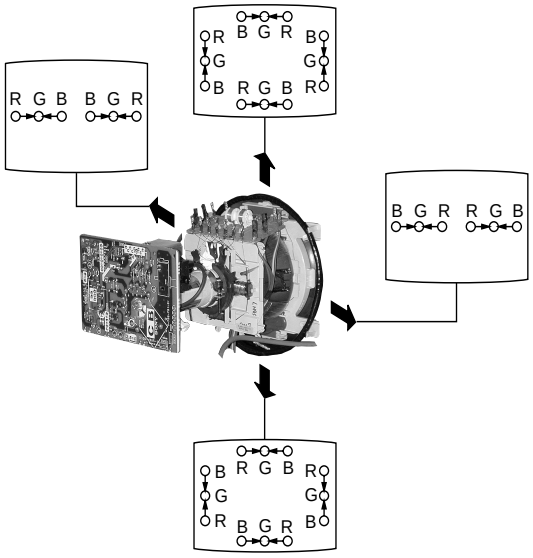




Dynamic Convergence Adjustment

Before performing this adjustment, perform Horizontal and Vertical Static Convergence Adjustment.

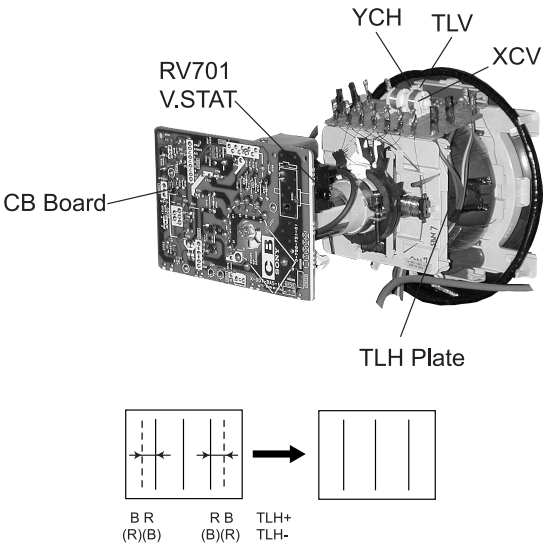
1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown on the following page.



4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

TLH Plate Adjustment

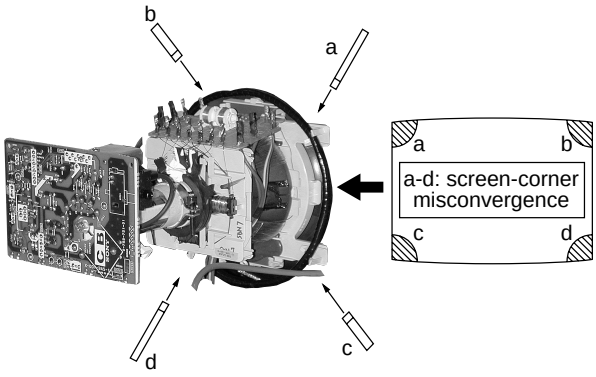
1. Input crosshatch pattern.
2. Adjust PICTURE QUALITY to standard, PICTURE and BRIGHTNESS to 50%, and OTHER to standard.
3. Adjust the Horizontal Convergence of red and blue dots by tilting the TLH plate on the deflection yoke.



4. Adjust XCV core to balance X axis.
5. Adjust YCH VR to balance Y axis.
6. Adjust vertical red and blue convergence with V.TILT (TLV VR). Perform adjustments while tracking items 1 and 2.

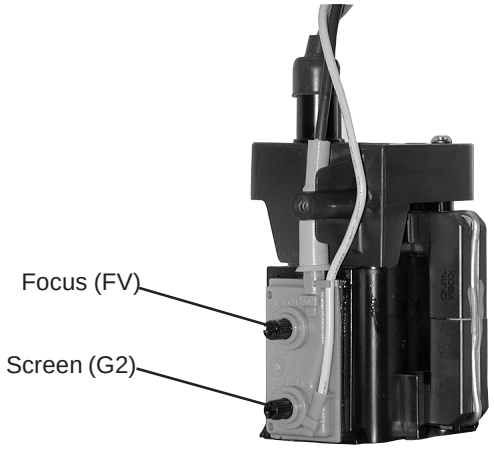
Screen-Corner Convergence

1. Affix a permalloy assembly corresponding to the misconverged areas.



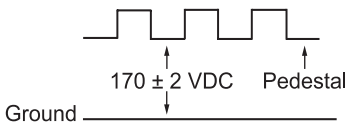
3-3. FOCUS

1. Adjust FOCUS control for best picture.



3-4. SCREEN (G2)

1. Input a dots pattern.
2. Set the PICTURE and BRIGHTNESS controls at minimum and COLOR control at normal.
3. Adjust SBRT, GCUT, BCUT in service mode with an oscilloscope as shown below so that voltages on the red, green, and blue cathodes are 170± 2 VDC.



4. Observe the screen and adjust SCREEN (G2) VR in FBT to obtain the faintly visible background of dot signal.

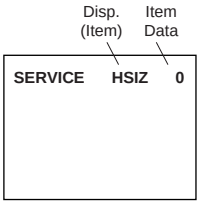
3-5. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

Service Mode Procedure

1. Standby mode (power off).
2. [Display] ➡ Channel [5] ➡ Sound volume [+] ➡ Power on the Remote Commander (press each button within a second).

Service Adjustment Mode In

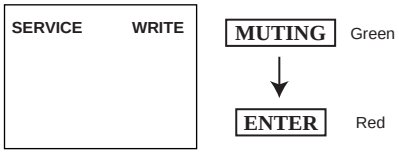
1. The CRT displays the item being adjusted.



2. Press [1] or [4] on the Remote Commander to select the item.
3. Press [3] or [6] on the Remote Commander to change the data.
4. Press [MUTING] then [ENTER] to save into the memory.

Service Adjustment Mode Memory

Turn set off then on to exit service adjustment mode.



3-6. WHITE BALANCE ADJUSTMENTS

1. Input an entire white signal with burst.
2. Set to Service Adjustment Mode.
3. Set DCOL to “0”.
4. Set the PICTURE and BRIGHTNESS to minimum.
5. Adjust with SBRT if necessary.
6. Select GCUT and BCUT with [1] and [4] .
7. Adjust with [3] and [6] for the best white balance.
8. Set PICTURE and BRIGHTNESS to maximum.
9. Select GDRV and BDRV with [1] and [4] .
10. Adjust with [3] and [6] for the best white balance.
11. Reset DCOL to “1”.
12. To write into memory, press [MUTING] then [ENTER] .

SECTION 4
SAFETY RELATED ADJUSTMENTS

4-1. ⋈ R564 CONFIRMATION METHOD (HV HOLD-DOWN CONFIRMATION AND READJUSTMENTS)

The following adjustments should always be performed when replacing the following components which are marked with ◪ on the schematic diagram:

Part Replaced (◪)	Adjustment (⋈)
DY, T505, CRT, IC501, C507, C520, C505, C509, C515, L509, L508, C551, L510, C546, C537, C547, D517, D518, D519, R560, R561, R562, R563, R565, R566, R567, R525 ..... A Board IC1301 ..... MB Board	HV HOLD-DOWN R564

Preparation Before Confirmation

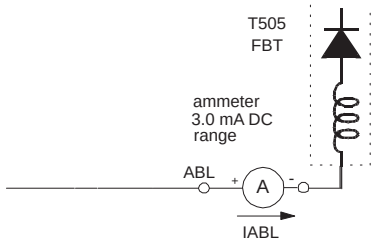
1. Using a Variac, apply AC input voltage: 120 ± 2 VAC.
2. Turn the POWER switch ON.
3. Input a white signal and set the PICTURE and BRIGHTNESS controls to maximum.
4. Confirm that the voltage between C546 (+) or TP503 and ground is more than 100 VDC.

Hold-Down Operation Confirmation

1. Connect the current meter between Pin 11 of the FBT (T505) and the PWB land where Pin 11 would normally attach. (See Figure 1 on the next page.)
2. Input a dot signal and set PICTURE and BRIGHTNESS to minimum: IABL = 100 ± 100 µA.
3. Confirm the voltage of A Board TP600 is 135 ± 1 VDC.
4. Connect the digital voltmeter and the DC power supply via diode 1SS119 to C546 (+) and ground. (See Figure 1 on the next page.)
5. Increase the DC power voltage gradually until the picture blanks out.
6. Turn DC power source off immediately.
7. Read the digital voltmeter indication (standard < 120 ± 0.3 VDC).
8. Input a white signal and set PICTURE and BRIGHTNESS to maximum: IABL = 820 ± 100 µA.
9. Repeat steps 4 to 7.

Hold-Down Readjustment

If the setting indicated in step 2 of Hold-Down Operation Confirmation cannot be met, readjustment should be performed by altering the resistance value of R564 component marked with ⋈ .



4-2. B+ VOLTAGE CONFIRMATION AND ADJUSTMENT

Note: The following adjustments should always be performed when replacing the following components, which are marked with ◪ on the schematic diagram on the A Board.

A BOARD: IC601, PH601

1. Using a Variac, apply AC input voltage: 130 + 2.0/-0.0 VAC.
2. Input a dot signal.
3. Set the PICTURE and BRIGHTNESS controls to minimum.
4. Confirm that the voltage of A Board TP600 is <136 VDC.
5. If step 4 is not satisfied, replace the components listed above, then repeat steps 1–3.

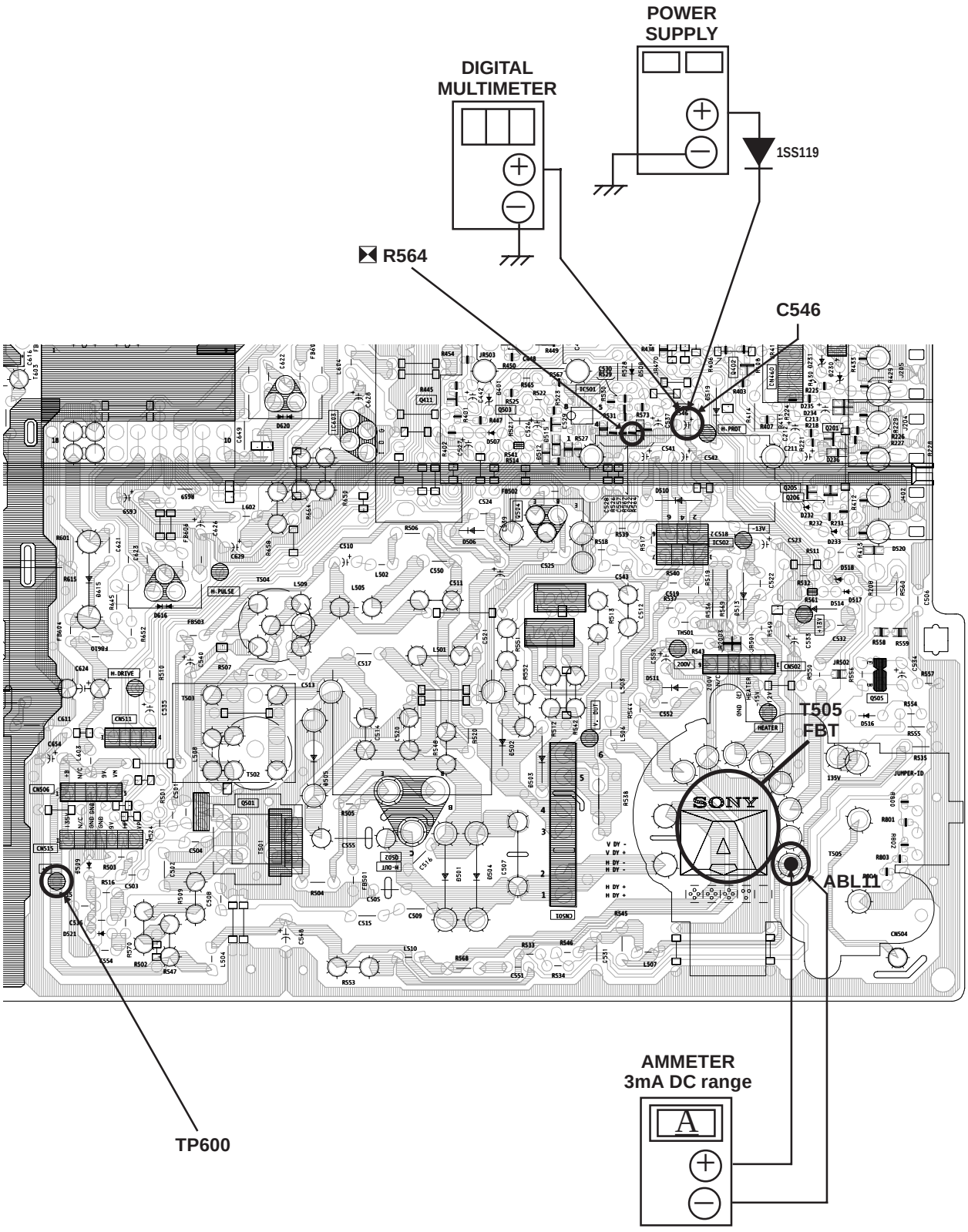

POWER
SUPPLY
DIGITAL
MULTIMETER
1SS119
R564
C546
T505
FBT
ABL11
AMMETER
3mA DC range
TP600

Figure 1

SECTION 5
CIRCUIT ADJUSTMENTS

ELECTRICAL ADJUSTMENTS BY REMOTE COMMANDER

Use the Remote Commander (RM-Y172) to perform the circuit adjustments in this section.

NOTE: Test Equipment Required:

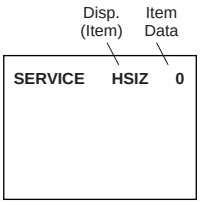
- Pattern generator
- Frequency counter
- Digital multimeter
- Audio oscillator

5-1. SETTING THE SERVICE ADJUSTMENT MODE

1. Standby mode (power off).
2. [Display] ➡ Channel [5] ➡ Sound volume [+] ➡ Power on the Remote Commander (press each button within a second).

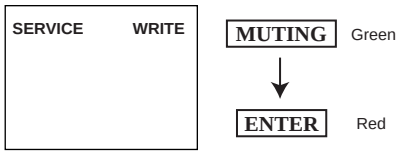
Service Adjustment Mode On

1. The CRT displays the item being adjusted.

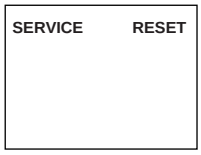


2. Press [1] or [4] on the Remote Commander to select an item.
3. Press [3] or [6] on the Remote Commander to change the data.
4. Press [MUTING] then [ENTER] to save into the memory.

Service Adjustment Mode Memory



1. Press [8] then [ENTER] on the Remote Commander to initialize.



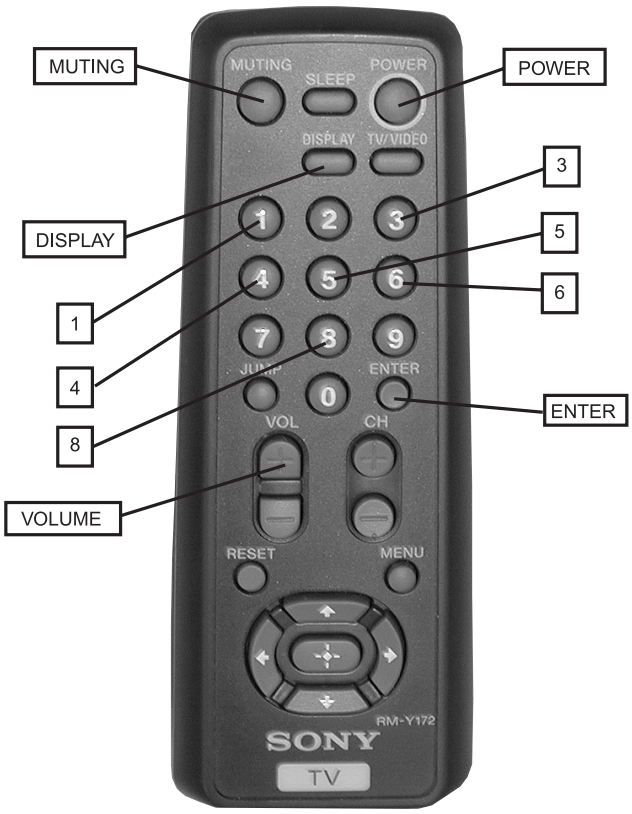
Carry out step 1 when adjusting IDs 0–4 and when replacing and adjusting IC1003.

2. Turn set off then on to exit service adjustment mode.

5-2. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, remove the power plug from the AC outlet, then plug it in again.
2. Turn the power switch ON and set to service mode.
3. Call the adjusted items again to confirm they were adjusted.

5-3. ADJUSTMENT BUTTONS AND INDICATORS



RM-Y172

Adjustment Items

Reg #	ITEM	FUNCTION	RANGE	FIX DATA	NTSC	PAL M	PAL N	VIDEO	RF	AVERAGE DATA
1	HSIZ	Horizontal Size Adjustment	0-63	35	35	35	35			31
2	HPOS	Horizontal Position Adjustment	0-63	20	33	33	33			17
3	VBOW	Vertical Line Bowing Adj.	0-15	7	5	5	5			7
4	VANG	Vertical Line Bowing Slant Adj.	0-15	7	7	7	7			8
5	TRAP	Horizontal Trapezoid Adj.	0-15	7	7	7	7			6
6	PAMP	Horizontal PIN distortion Adj.	0-63	20	7	7	7			15
7	UPIN	Upper PIN Distortion Adj.	0-63	31	36	36	36			28
8	LPIN	Lower PIN Distortion Adj.	0-63	31	36	36	36			34
9	VM	Velocity modulatin on/off	0,1	Palette mode controls this register						0
10	BLKO	Vertical Blanking on/ff	0,1	0						0
11	VMLV	Velocity Modulation Level	0-3	Palette mode controls this register						0
12	AGN2	Aging 2	0,1	0						0
13	REFP	Reference Pulse position	0,1	0						0
14	VBLK	Vertical Blanking on/ff	0,3	0						0
15	JPSW		0,1	0						0
16	VSIZ	Vertical Size Adjustment	0-63	31	47	47	47			23
17	VPOS	Vertical Position Adj.	0-63	31	32	32	32			32
18	VLIN	Vertical lineality Adj.	0-15	7						5
19	SCOR	Vertical "S" Correction Adjustment	0-15	6						4
20	VZOM	16:9 CRT Z Mode on/off	0,1	0						0
21	EHT	Vertical High-Voltage Compensation	0-15	8						10
22	ASP	Aspect Ratio control	0-63	47						47
23	SCRL	16:9 CRT Z Mode Trans. Scroll	0-63	31						31
24	HBLK	Horizontal Blanking on/off	0,1	1						1
25	LBLK	Left Blanking Adjustment	0-15	11						11
26	RBLK	Rigth Blanking Adjustment	0-15	8						8
27	VUSN	V Saw Waveform Compress	0,1	0						0
28	HDW	Horizontal Drive Pulse Width	0,1	1						1
29	EWDC	"Parabola" EW, D.C. Adjustment	0,1	0						0
30	LVLN	Lower Screen BTM Vertical Line Adj.	0-15	0						0
31	UVLN	Uppe Screen BTM Vertical Line Adj.	0-15	0						0
32	HTRP	Horiz. Trapezoid	0-1	0						0
33	RDRV	R Output Drive control	0-63	31						21
34	GDRV	G Output Drive control	0-63	21						14
35	BDRV	B Output Drive control	0-63	21						14
36	RCUT	R Output Cutoff control	0-15	10						10
37	GCUT	G Output Cutoff control	0-15	6						7
38	BCUT	B Output Cutoff control	0-15	6						7
39	DCOL	Dynamic Color on/off	0,1	0						1
40	SHUE	Sub HUE adjustment	0-31	12						14
41	SCOL	Sub COLOR adjustment	0-31		14	14	14			14
42	SBRT	Sub BRIGHTNESS adjustment	0-31	13						13
43	RON	R Output on/off	0,1	1						1
44	GON	G Output on/off	0,1	1						1
45	BON	B Output on/off	0,1	1						1
46	AXPL	Axis PAL	0,1	0						0
47	AXNT	Axis NTSC	0,1	0						1
48	CBPF	Chroma BPF on/off	0,1	1						1
49	CTRP	Y TRAP FILTER on/off	0,1	1						1
50	COFF	Color On/off	0,1	0						0
51	KOFF	Set Color Killer	0,1	0						0
52	SSHP	Sub SHARPNESS	0-15	5						5
53	SHPF	SHARPNESS Circuit Fo	0,1	Palette mode controls this register						1
54	PREL	Pre-Shoot/ Over-Shoot	0,1	1						1
55	Y-DC	DC transmition Ratio Switching	0,1	Palette mode controls this register						1
56	GAMM	Gamma Correction	0-3	Palette mode controls this register						1
57	ABLM	ABL Mode Switch	0,1	1						1
58	VTH	ABL CD VHT Switching	0,1	1						1
59	YDEL	Y Delay Time Control	0-15	7						7
60	NCOL	No Color ID	0,1	1						1

Reg #	ITEM	FUNCTION	RANGE	FIX DATA	NTSC	PAL M	PAL N	VIDEO	RF	AVERAGE DATA
64	VSS	Vertical Sync Slice Level	0,1	*						0
65	HSS	Horizontal Sync Slice Level	0,1	0						0
66	HMSK	For Macro Vision	0,1	0						0
67	VTMS	Select Signal VTIM Pin	0-3	0						0
68	CDMD	Vertical Count Down Mode Switching	0-3	**				3	**	
69	AFC	AFC Loop Gain Switching	0-3	0				0	0	0
70	FIFR	Field Frequency	0-3		3	1	1			3
71	SBAL	Sub Balance	0-15	5						7
72	SBAS	Sub Bass	0-7	0						9
73	STRE	Sub Trebble	0-7	3						9
74	BBEH	BBE High	0-15	6						
75	BBEL	BBE Low	0-15	8						12
76	SRND	Surround	0,1	0						13
77	AUX	SRS, Simulated	0,3	0						
78	DISP	O.S.D Display position	0-130	26						15
79	TROT	Tilt Correction	0-63	31						31
80	HCLW	Horizontal Count lower limit	0-255	16						16
81	HCHG	Horizontal Count High limit	0-255	64						64
106	SYSC	Color System	0-7	4						6
107	VENH	Vertical Enhancement	0-7	Palette mode controls this register						4
108	PDSO		0,1	0						
109	CK		0,1	0						
110	VNL		0,15	3						3
111	HPK		0,1	0						0
112	HPK0		0,1	Palette mode controls this register						
113	CORE		0,3	1						1
114	TRAP		0,1	1						1
115	CHTR		0,1	0						0
116	CHPF		0,1	1						1
117	ENHO		0,1	0						0
118	ID0		0,255							See ID Map
119	ID1		0,255							See ID Map
120	ID2		0,255							See ID Map
121	ID3		0,255							See ID Map
122	ID4		0,255							See ID Map
123	ID5		0,255							See ID Map
124	ID6		0,255							See ID Map

* VSS = 1 for US & CND, VSS = 0 for Other

** CDMD = 3 for US & CND, CDMD = 0 for Other

SERVICE	ID0	25

Notes:

No. 1–100 show the order that each adjustment mode may be selected while in service mode.

Data Range shows the range of possible settings for each adjustment mode.

Initial Data shows the standard settings for each adjustment mode.

Feature ID Map

MODEL	Destination	ID-0	ID-1	ID-2	ID-3	ID-4	ID-5	ID-6
KV-13FM12	US	89	3	72	16	137	1	0
KV-13FM12	CND	89	3	72	48	137	1	0
KV-13FM13	US	89	3	72	16	137	1	0
KV-13FM14	US	89	3	72	16	137	1	0
KV-14FM12	E	17	3	88	2	233	1	0
KV-14FM1C	E	17	3	88	2	233	1	0
KV-14FM12A	E	23	3	88	2	233	1	128
KV-14FM14	E	17	3	88	2	233	1	0

5-4. MB BOARD ADJUSTMENTS

H. Frequency (Free Run) Check

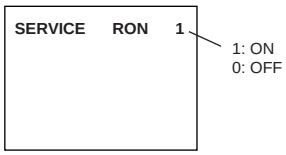
1. Input a TV mode (RF) with no signal.
2. Connect a frequency counter to base of Q501 (TP500 H. DRIVE).
3. Check H. Frequency for 15735 ± 200 Hz for NTSC, 15650 ± 200 Hz for PAL M,N (KV-14FM12A ONLY)

V. Frequency (Free Run) Check

1. Select video 1 with no signal input.
2. Set the conditions for a standard setting.
3. Connect the frequency counter on the A Board to TP508 (V OUT) or CN501 pin ⑥ (V DY+) and ground.
4. Check that V. Frequency shows 60 ± 4 Hz for NTSC, 50 ± 4 Hz for PAL M,N (KV-14FM12A ONLY)

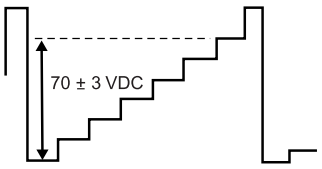
Drive (RDRV)

1. Input a color-bar signal and set the level to 75%.
2. In Standard mode, set PICTURE to maximum and COLOR to minimum.
3. Activate the Service Adjustment Mode.
4. Set both GON and BON items. Using [3] and [6]; set each to the following values. Leave RON set to "1".



R ON: ON (1)
G ON: OFF (0)
B ON: OFF (0)

5. Select the DCOL item and set it to "0".
6. Connect an oscilloscope probe to CB board, J701 pin ⑪ KR (RED OUT).
7. Select RDRV with [1] and [4] .
8. Adjust the value of RDRV with [3] and [6] for 70 ± 3 VDC.



9. Reset the item DCOL to "1".
10. Reset GON and BON values to "1".

R ON: ON (1)
G ON: ON (1)
B ON: ON (1)

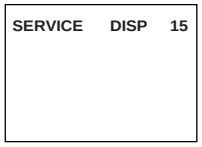
11. Reset Picture and Color to normal values:

PICTURE: MAX
COLOR: CENTER

12. Press [MUTING] then [ENTER] to save into the memory.

Display Position Adjustment (DISP)

1. Input a color-bar signal.
2. Set to Service Adjustment Mode.
3. Select DISP with [1] and [4] .
4. Adjust values of DISP with [3] and [6] to adjust characters to the center.
5. Write to memory by pressing [MUTING] then [ENTER] .
6. Check to see if the text is displayed on the screen.

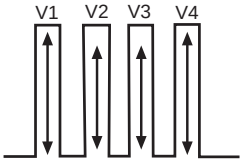


Sub Bright Adjustment (SBRT)

1. Input a monoscope signal.
2. Activate the Service Adjustment Mode.
3. Set the PICTURE and BRIGHTNESS to minimum.
4. Select the SBRT item with [1] and [4] .
5. Adjust the values of SBRT with [3] and [6] to obtain a faintly visible crosshatch.
6. Press [MUTING] then [ENTER] to save into the memory.

Sub Hue, Sub Color Adjustment (SHUE, SCOL)

1. Input a color-bar signal.
2. Activate the Service Adjustment Mode.
3. Select the DCOL item and set the value to "0".
4. Connect an oscilloscope probe to CB board, CN705 Pin ④ (Blue Out).
5. Select the SHUE and SCOL item with [1] and [4] .
6. While showing the SHUE item, adjust the waveform with [3] and [6] until the second and third bars show the same level (V2 = V3 < 0.1 Vp-p).
7. While showing the SCOL item, adjust the waveform with [3] and [6] until the first and fourth bars show the same level (V1 = V4 < 0.1 Vp-p).

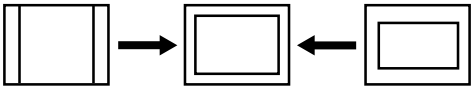


8. Select the DCOL item and reset to 1.
9. Press [MUTING] then [ENTER] to save into the memory.

V. Size Adjustment (VSIZ)

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the VSIZ item with [1] and [4] .
4. Adjust value of VPOS with [3] and [6] for the best vertical center.

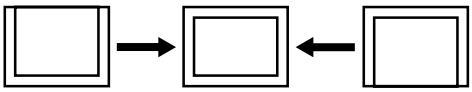
5. Press MUTING then ENTER to save into the memory.



V. Center Adjustment (VPOS)

Perform this adjustment after performing H. Frequency (Free Run) Check.

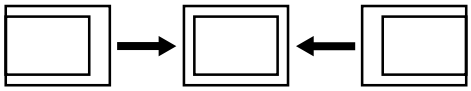
1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the VPOS item with 1 and 4 .
4. Adjust value of VPOS with 3 and 6 for the best vertical center.
5. Press MUTING then ENTER to save into the memory.



H. Center Adjustment (HPOS)

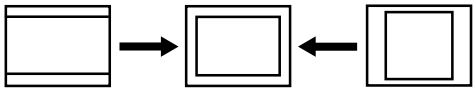
Perform this adjustment after performing H. Frequency (Free Run) Check.

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the HPOS item with 1 and 4 .
4. Adjust the value of HPOS with 3 and 6 for the best horizontal center.
5. Press MUTING then ENTER to save into the memory.



H. Size Adjustment (HSIZ)

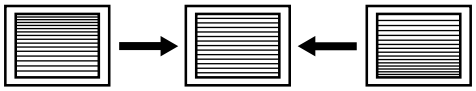
1. Input a monoscope signal.
2. Activate the Service Adjustment Mode.
3. Select HSIZ with 1 and 4 .
4. Adjust with 3 and 6 for the best horizontal size.
5. Press MUTING then ENTER to save into the memory.



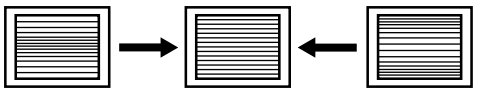
V. Linearity (VLIN), V. Correction (VSCO), Pin Amp (PAMP), and Horizontal Trapezoid (TRAP) Adjustments

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select VLIN, VSCO, PAMP, and PPHA with 1 and 4.
4. Adjust with 3 and 6 for the best horizontal size.
5. Press MUTING then ENTER to save into the memory.

V LINEARITY (VLIN)

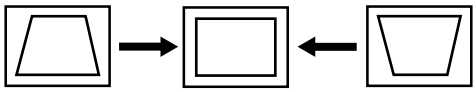


V CORRECTION (VSCO)



PIN AMP (PAMP)

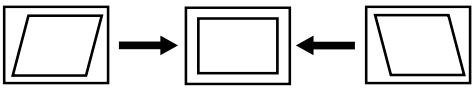
HORIZONTAL TRAPEZOID (TRAP)



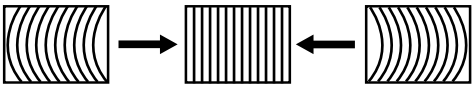
V. Angle (VANG), V. Bow (VBOW), Upper pin (UPIN) and Low Pin (LPIN) Adjustments

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select VANG, VBOW, UPIN, and LPIN with 1 and 4.
4. Adjust with 3 and 6 for the best picture.
5. Press MUTING then ENTER to save into the memory.

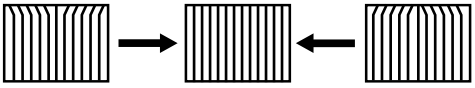
V ANGLE (VANG)



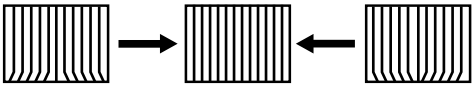
V BOW (VBOW)



UPPER PIN (UPIN)



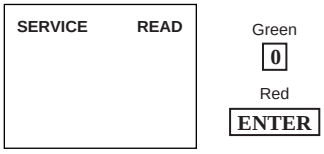
LOW PIN (LPIN)



Service Adjustment Mode Memory

1. Change the value of the DCOL item to "1".
2. After completing all adjustments, press 0 then ENTER .

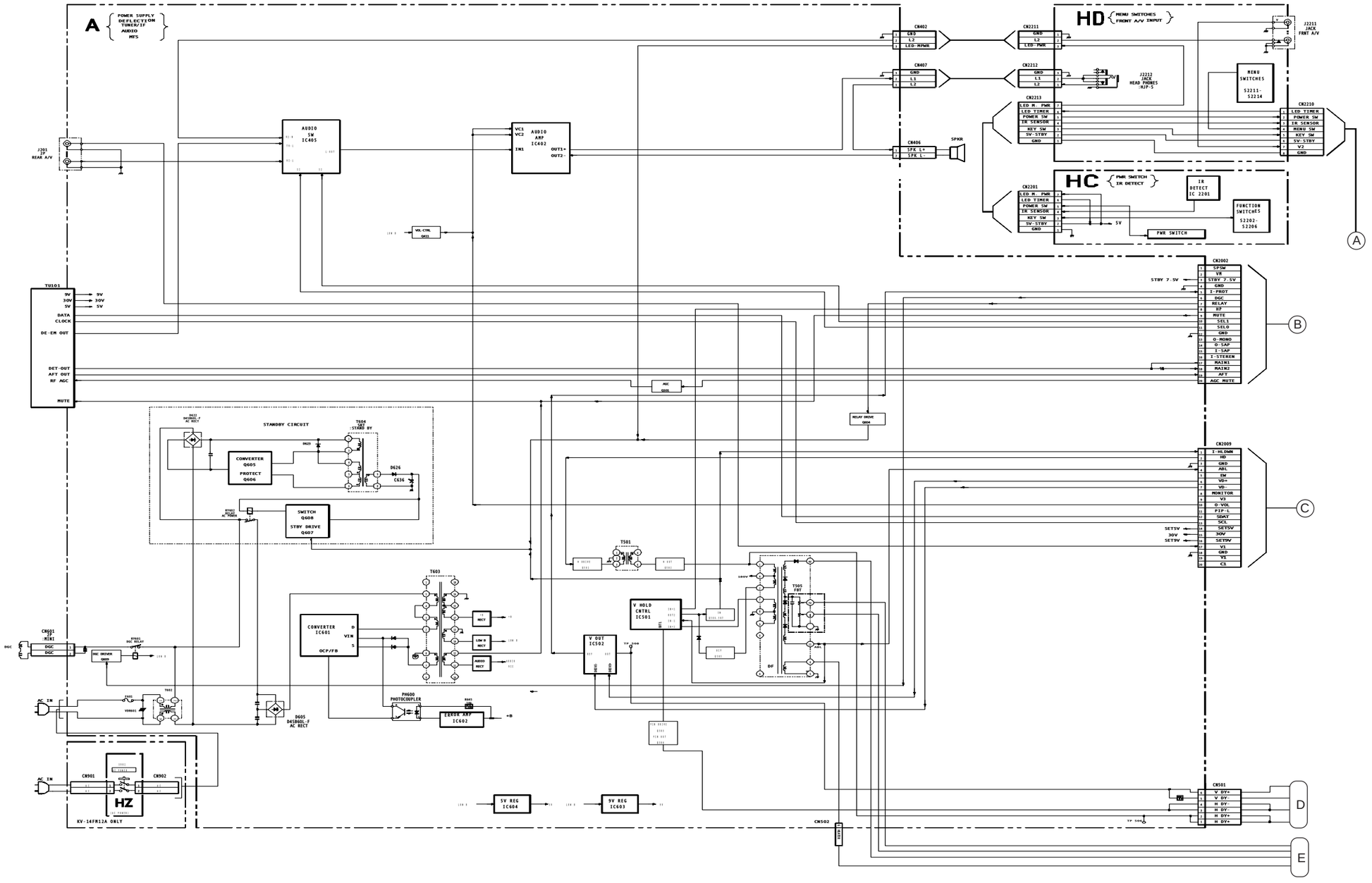
Read From Memory

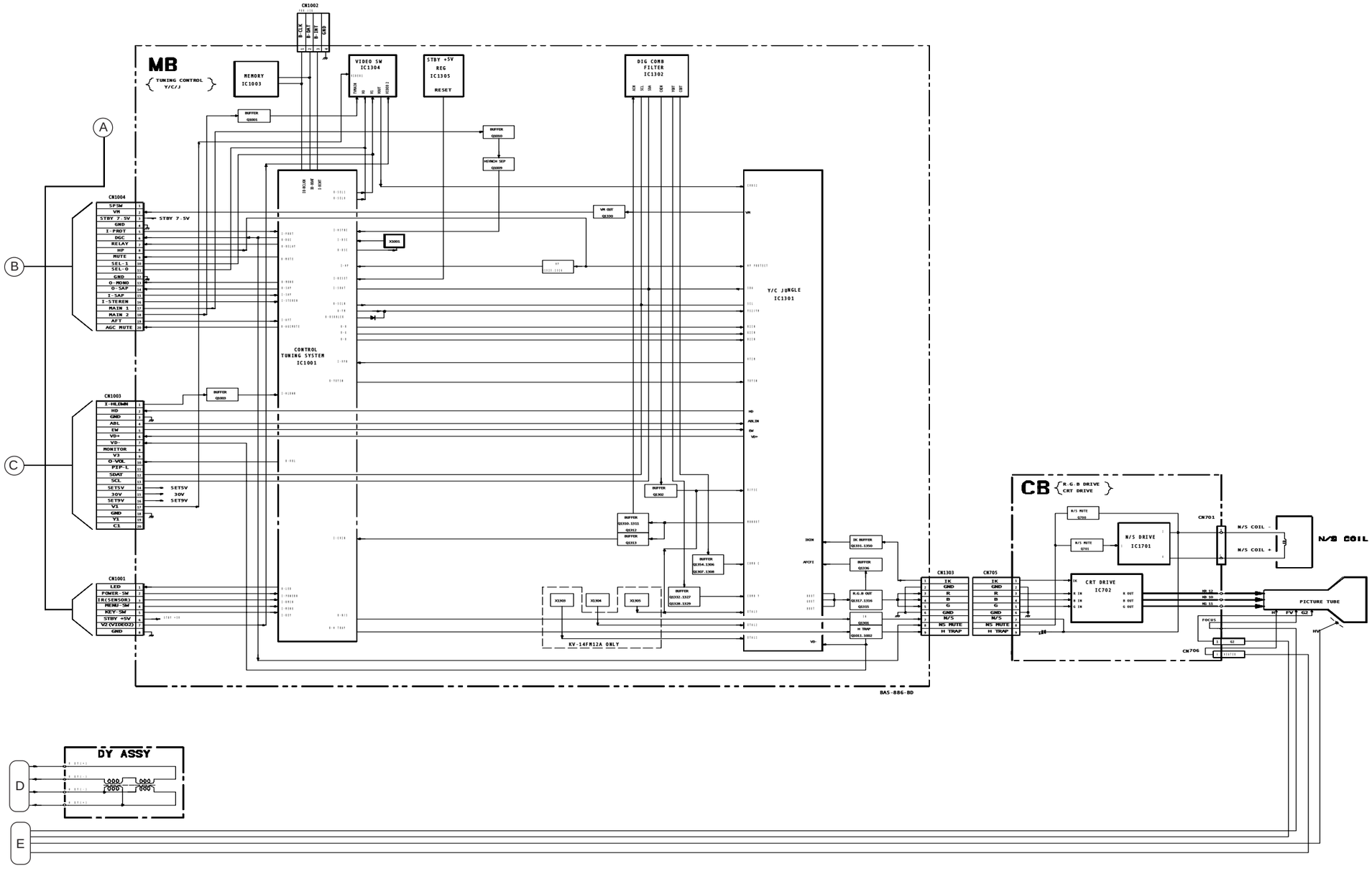


NOTES:

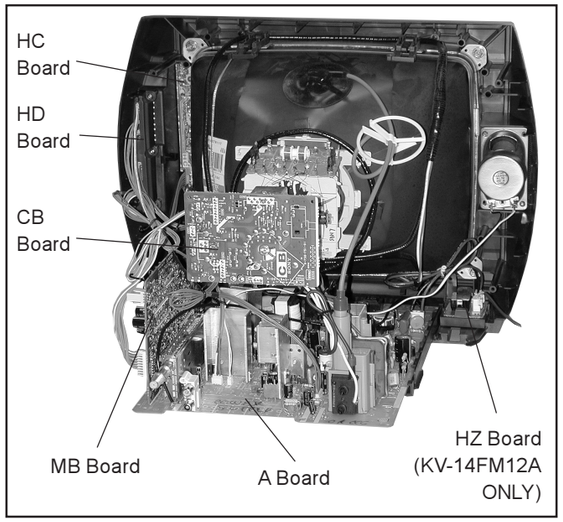
SECTION 6
DIAGRAMS

6.1 BLOCK DIAGRAM




MB
TUNING CONTROL Y/C/J
MEMORY IC1003
VIDEO SW IC1304
STBY +5V REG IC1305
RESET
DIG COMB FILTER IC1302
CONTROL TUNING SYSTEM IC1001
Y/C JUNGLE IC1301
CM1002
CM1004
CM1003
CM1001
STBY 7.5V
5ETSV
30V
KV-14FM12A ONLY
CB
R.G.B DRIVE CRT DRIVE
CRT DRIVE IC702
N/S DRIVE IC1701
CM701
N/S COIL
PICTURE TUBE
CM1303
CM705
CM706
BA5-886-BD
DY ASSY

6.2 CIRCUIT BOARD LOCATIONS



6-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytic and tantalums.
- All electrolytics are 50V unless otherwise specified.
- Indication of resistance, which does not have one for rating electrical power, is as follows:

  Pitch: 5mm

  Rating electrical power 1/4W (CHIP: 1/10W)
- All resistors are in ohms.

  KΩ = 1000Ω MΩ = 1000KΩ
- : nonflammable resistor
- : fusible resistor
- : internal component
- : panel designation and adjustment for repair
- : earth-ground
- : earth-chassis
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⧓ and repeat the adjustment until the specified value is achieved (refer to Safety Related Adjustments on page 19).
- When replacing parts shown in the table below, be sure to perform the related adjustments.

Part Replaced (◪)	Adjustment (⧓)
DY, T505, CRT, IC501, C507,C520, C505, C509, C515, L508,L509, C551, L510, C546, C537, C547, D517, D518, D519, R560,R561, R562, R563, R565, R566, R567, R525.....A Board IC1301.....MB Board	HV HOLD-DOWN (R564)
IC601, PH601.....A Board	B+ VOLTAGE CONFIRMATION

- All voltages are in V.
- Voltage is DC with respect to ground unless otherwise noted.
- Readings are taken with a 10MW digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- Circled numbers are waveform references.
- * : cannot be measured
- ▬▬ : B + Line
- - - - - : B – Line
- ⇨ : Signal path

Reference Information

RESISTOR	:	RN	METAL FILM
	:	RC	SOLID
	:	FPRD	NON FLAMMABLE CARBON
	:	FUSE	NON FLAMMABLE FUSIBLE
	:	RW	NON FLAMMABLE WIREWOUND
	:	RS	NON FLAMMABLE METAL OXIDE
	:	RB	NON FLAMMABLE CEMENT
	:	※	ADJUSTMENT RESISTOR
COIL	:	LF-8L	MICRO INDUCTOR
CAPACITOR	:	TA	TANTALUM
	:	PS	STYROL
	:	PP	POLYPROPYLENE
	:	PT	MYLAR
	:	MPS	METALIZED POLYESTER
	:	MPP	METALIZED POLYPROPYLENE
	:	ALB	BIPOLAR
	:	ALT	HIGH TEMPERATURE
	:	ALR	HIGH RIPPLE

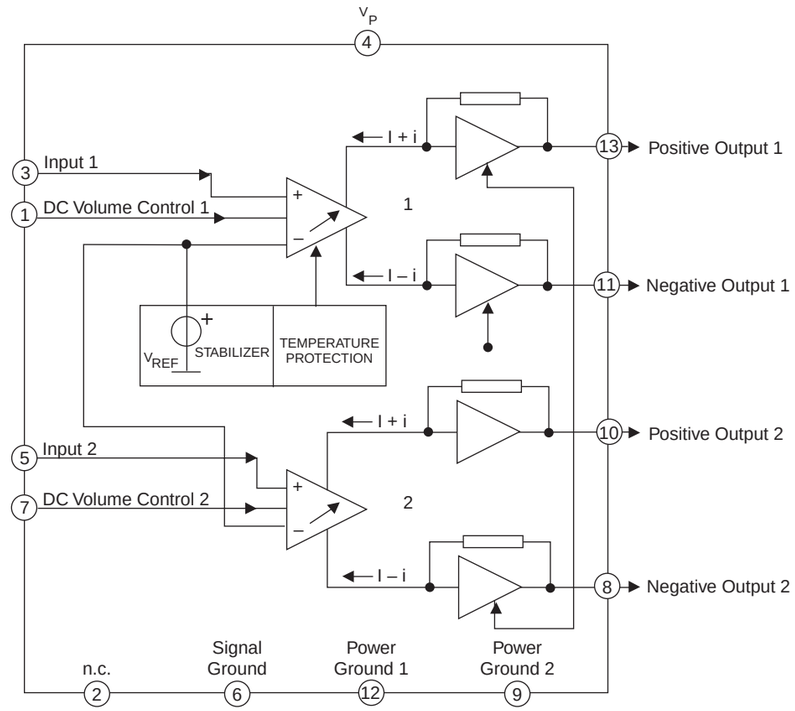
Note:

The components identified by shading and ⚠ mark are critical for safety. Replace only with the part number specified.
The symbol ▭ (displayed on component side of the circuit board) indicates fast operating fuse. Replace only with fuse of the same rating as marked.

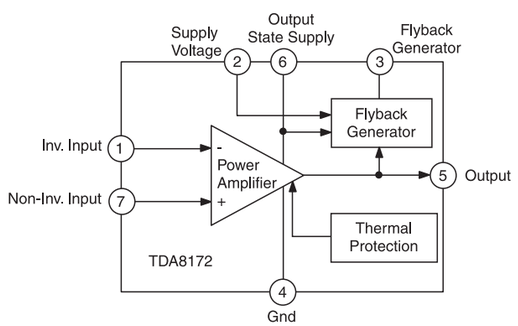
Les composants identifiés per un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié. Le symbole ▭ indique une fusible a action rapide. Doit etre remplacee par une fusible de meme yaleur, comme marque.

A BOARD IC BLOCK DIAGRAMS

A BOARD: IC401 TDA7057AQ/N2

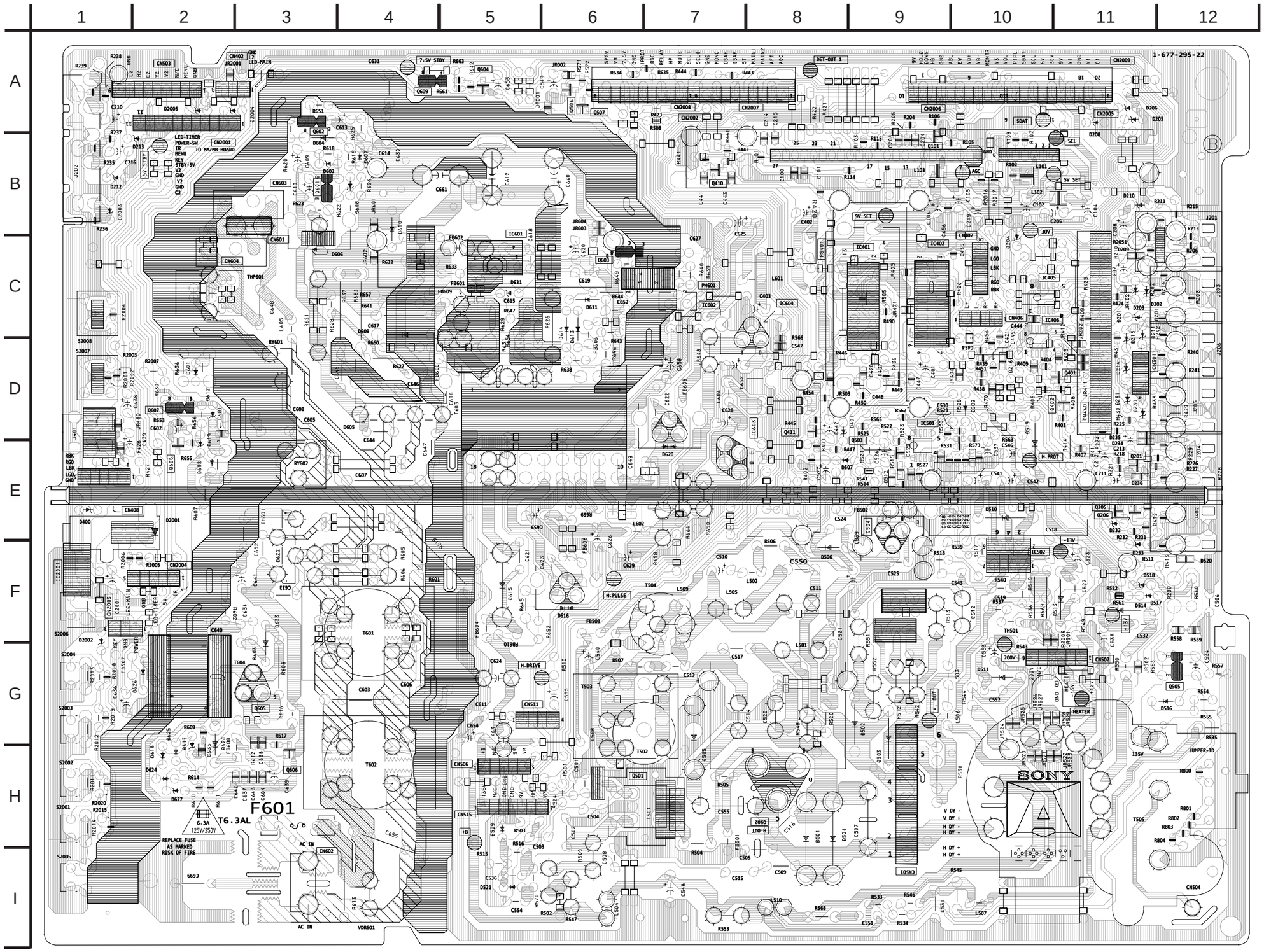


A BOARD: IC502 TDA8172



A

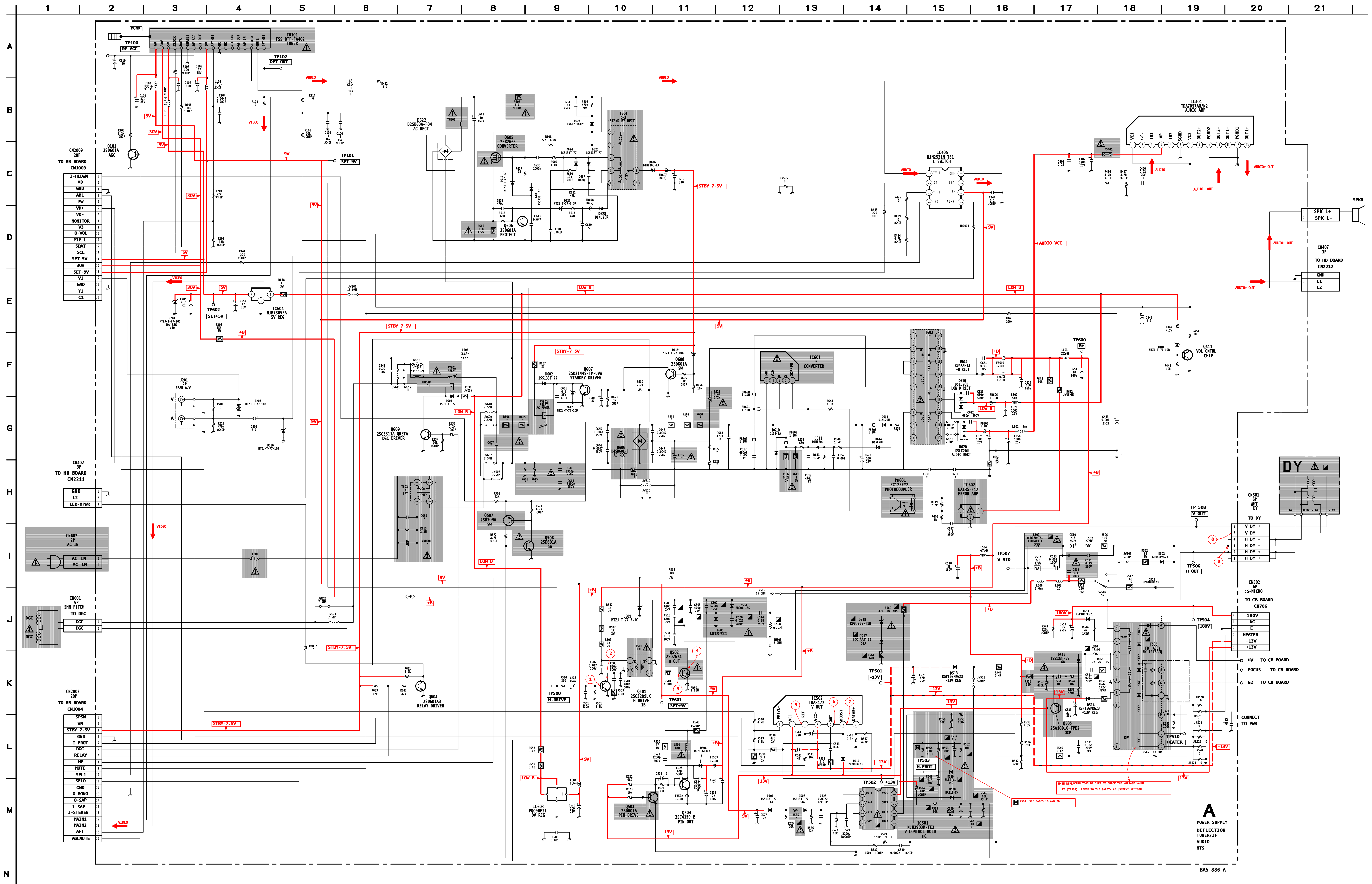
[POWER SUPPLY, DEFLECTION, TUNER/IF, AUDIO, MTS]



A BOARD LOCATOR LIST

DIODE		D620	E-7
D204	C-10	D622	F-3
D208	B-11	D623	F-3
D209	B-11	D624	H-2
D210	B-11	D625	G-2
D400	E-1	D626	G-2
D401	E-8	D627	H-2
D502	G-9	D628	G-2
D503	G-9	D2002	F-1
D504	H-9	D2004	A-3
D505	G-7	D2005	A-2
D506	E-8	**IC**	
D507	E-8	IC401	C-9
D508	E-10	IC405	C-10
D509	H-5	IC501	D-9
D510	E-10	IC502	F-10
D511	G-10	IC601	B-5
D513	F-10	IC602	C-7
D514	F-11	IC603	E-7
D516	G-12	IC604	C-8
D517	F-11	**TRANSISTOR**	
D518	F-11	Q101	B-9
D519	E-10	Q411	D-8
D520	F-12	Q501	H-6
D601	D-2	Q502	H-7
D602	E-2	Q503	D-8
D605	D-4	Q504	E-9
D610	C-4	Q505	G-11
D611	C-6	Q506	A-6
D612	C-2	Q507	A-6
D613	D-6	Q604	A-5
D614	D-6	Q605	G-3
D615	F-5	Q606	G-3
D616	F-6	Q607	D-2
D617	G-2	Q608	E-2
D618	G-2	Q609	A-4
D619	D-2		

A BOARD SCHEMATIC DIAGRAM



A BOARD IC VOLTAGE LIST

IC401		9	0.0	4	0.1	4	GND	4	-13.9	5	-32.7	3	GND
pin	volt	10	6.9	5	6.1	5	9.5	5	0.2	IC602		4	13.3
1	0.6	11	6.9	6	9.0	6	10.1	6	14.3	pin	volt	IC604	
2	0.0	12	0.0	7	5.3	7	0.1	7	2.1	1	135.9	pin	volt
3	2.4	13	6.9	8	GND	8	14.0	IC601		2	123.4	1	13.3
4	14.3	IC405		IC501		IC502		pin	volt	3	GND	2	5.0
5	2.4	pin	volt	pin	volt	pin	volt	1	-31.8	IC603		3	GND
6	0.0	1	6.0	1	0.2	1	2.1	2	-32.7	pin	volt		
7	0.6	2	0.1	2	3.7	2	14.0	3	53.2	1	13.3		
8	6.9	3	6.1	3	2.5	3	-12.6	4	-23.8	2	8.9		

TU101		4	4.9	9	9.0	14	N/C
pin	volt	5	4.9	10	3.9	15	N/C
1	8.8	6	GND	11	GND	16	0.1
2	30.5	7	3.5	12	N/C	17	0.1
3	5.0	8	0	13	N/C	18	3.1

All voltages are in V

A BOARD MARK (*) LIST

REF NO.	LOC.	KV-13FM12 KV-13FM13 KV-13FM14	KV-14FM12 KV-14FM12C KV-14FM14	KV-14FM12A
C540	L-11	22 160V	4.7 160V	4.7 160V
C607	G-8	0.47 125V	0.22 300V	0.47 250V
C612	H-10	470 250V	330 400V	330 400V
C630	H-14	0.0047 250V	#	#
C631	H-15	0.0047 250V	#	#
C655	H-6	0.47 125V	0.22 300V	0.47 250V
C699	K-19	0.0047 250V	#	#
F601	I-6	6.3A/125V	6.3A/250V	6.3A/250V
IC601	G-12	STR-F6624	STR-F6654	STR-F6654
JR414	G-12	0	#	#
R525	M-12	6.8K	6.8K	6.8K
R601	H-8	4.7M 1/2W	#	#
R605	G-8	1 10W	1.2 10W	1.2 10W
R606	G-8	1 10W	1.2 10W	1.2 10W
R615	H-9	#	8.2M 1W	8.2M 1W
R621	H-10	#	1.2 10W	1.2 10W
R627	H-11	390K	270K	270K
R628	H-11	JW(5MM)	270K	270K
R637	G-10	JW(20MM)	5.6K 3W	5.6K 3W
R638	G-14	33	56	56
R660	G-11	15K 3W	5.6K 3W	5.6K 3W
R662	G-11	JW(20MM)	5.6K 3W	5.6K 3W
R2007	K-5	#	470	#
T602	H-7	1-431-419-11	1-426-717-11	1-426-717-11
T603	G-14	1-433-806-11	1-433-807-11	1-433-807-11
THP601	F-6	1-809-539-11	1-803-540-11	1-803-540-11
VDR601	I-6	ENE271D-10A	ENE621D-14A	ENE621D-14A

#: Not Mounted

A BOARD TRANSISTOR VOLTAGE LIST

Q101		Q502		Q505		Q604		Q608	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	0.0	B	-0.1	B	134.9	B	0.1	B	0.0
C	5.6	C	133	C	1.8	C	4.1	C	0.7
E	GND	E	GND	E	135.5	E	GND	E	GND
Q411		Q503		Q506		Q606		Q609	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	5.3	B	0.2	B	0.0	B	-36.1	B	0.0
C	GND	C	3.8	C	0.0	C	-35.3	C	13.9
E	5.2	E	0.0	E	GND	E	-36.3	E	GND
Q501		Q504		Q507		Q607			
pin	volt	pin	volt	pin	volt	pin	volt		
B	0.0	B	0.1	B	0.0	B	0.7		
C	93.3	C	-6.5	C	0.0	C	0.1		
E	GND	E	0.0	E	0.0	E	GND		

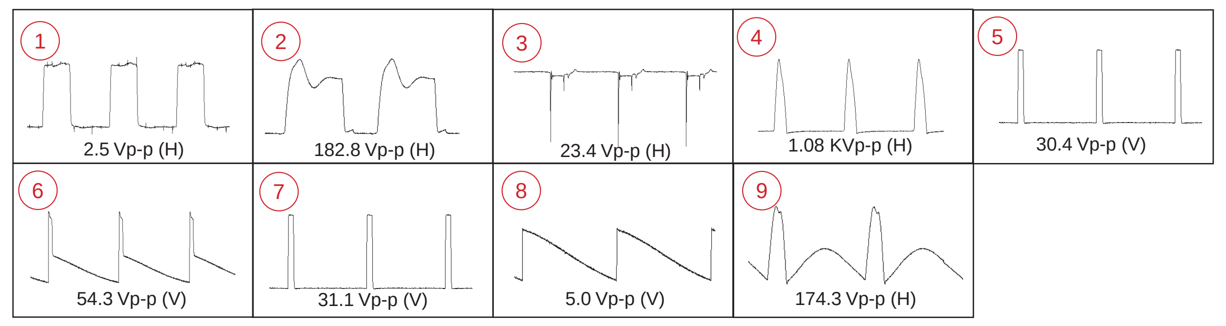
All voltages are in V

A BOARD TRANSISTOR VOLTAGE LIST

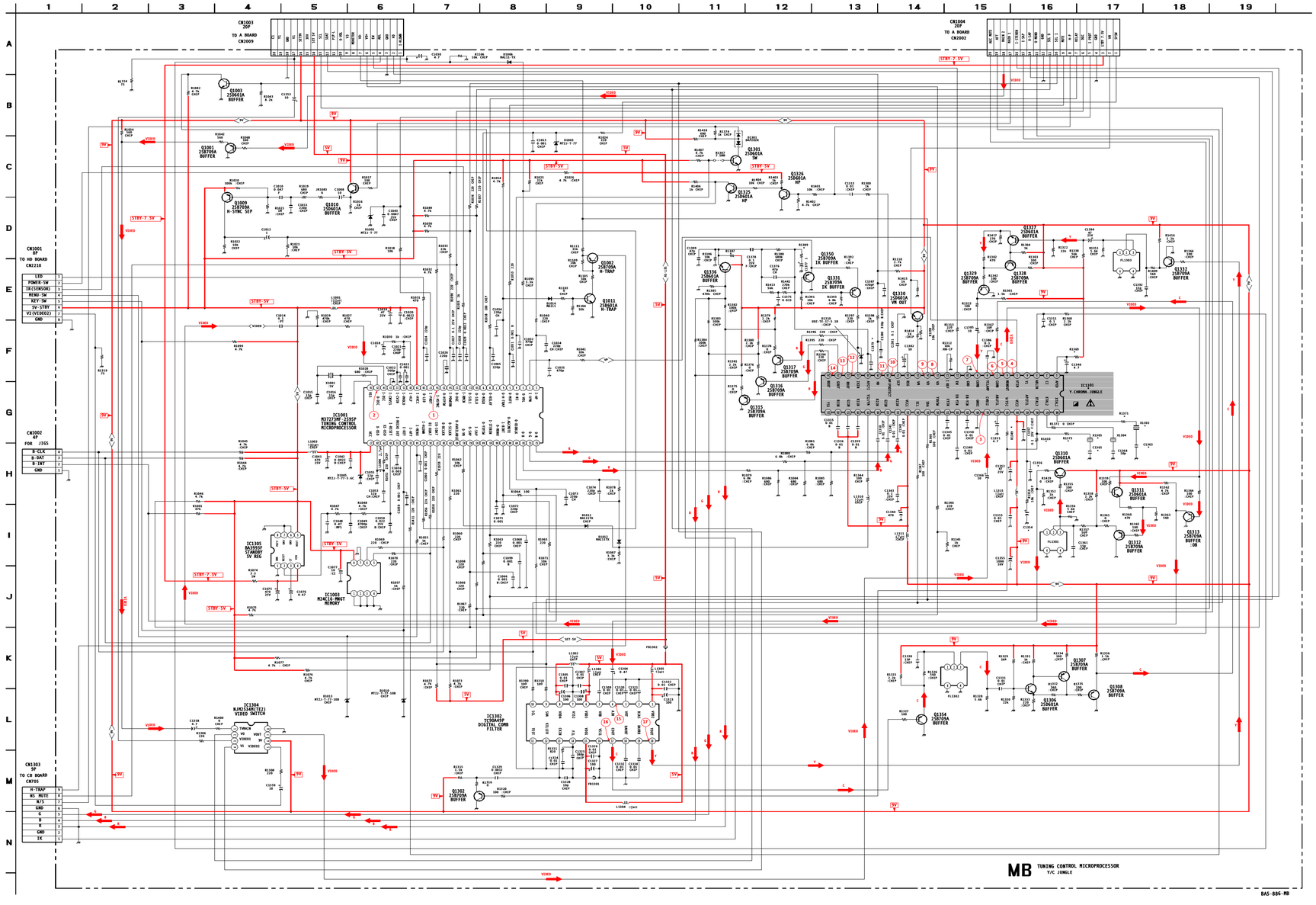
Q605	
pin	volt
D	-35.6
G	40.8
S	36.8

All voltages are in V

A BOARD WAVEFORMS



MB BOARD SCHEMATIC DIAGRAM

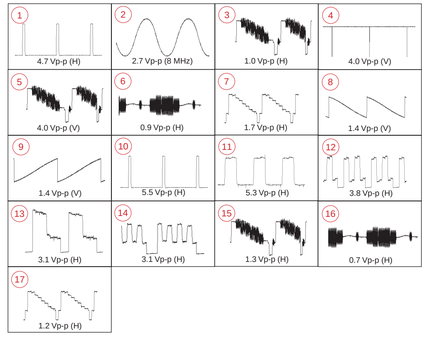


MB BOARD TRANSISTOR VOLTAGE LIST

Q1001		Q1011		Q1308		Q1315		Q1327		Q1332	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	4.8	B	0.0	B	5.7	B	1.4	B	2.4	B	2.4
C	GND	C	3.5	C	GND	C	GND	C	7.6	C	GND
E	5.4	E	GND	E	6.3	E	2.0	E	1.8	E	3.0
Q1002		**Q1301**		**Q1310**		**Q1316**		**Q1328**		**Q1336**	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	3.5	B	0.4	B	2.4	B	1.6	B	7.6	B	2.0
C	3.5	C	2.3	C	8.7	C	GND	C	4.5	C	8.9
E	3.5	E	GND	E	1.8	E	2.2	E	8.3	E	1.7
Q1003		**Q1302**		**Q1311**		**Q1317**		**Q1329**		**Q1350**	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	0.0	B	4.6	B	0.0	B	1.5	B	4.5	B	3.6
C	5.0	C	GND	C	8.9	C	GND	C	GND	C	GND
E	GND	E	5.2	E	3.7	E	2.2	E	5.1	E	3.6
Q1009		**Q1306**		**Q1312**		**Q1325**		**Q1330**		**Q1354**	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	5.2	B	2.4	B	2.0	B	0.6	B	4.9	B	0.0
C	0.8	C	7.5	C	GND	C	0.7	C	8.9	C	GND
E	5.0	E	1.8	E	0.0	E	GND	E	4.3	E	3.2
Q1010		**Q1307**		**Q1313**		**Q1326**		**Q1331**			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt		
B	4.5	B	0.0	B	4.3	B	0.0	B	3.6		
C	8.7	C	5.7	C	GND	C	3.8	C	1.6		
E	3.8	E	8.2	E	5.0	E	GND	E	3.6		

All voltages are in V

MB BOARD WAVEFORMS



MB BOARD MARK (*) LIST

REF NO.	LOC.	KV-13FM12 KV-13FM13 KV-13FM14 KV-14FM12 KV-14FM12C KV-14FM14	KV-14FM12A
C1354	I-16	0.47	0.22
C1356	H-16	470 PF	220 PF
C1363	G-18	#	18 PF
C1365	G-17	#	18 PF
C1379	F-13	0.01	0.0047
IC1301	G-14	CXA2131AS	CXA2135S
Q1330	E-14	2SD601A-QRS-TX	2SC2412K-T-146-QR
R1349	G-15	#	0
R1369	F-16	#	4.7 M
R1371	G-17	#	0
R1373	G-17	#	0
R1387	D-11	56K	33K
R1389	D-12	8.2K	15K
R1410	G-16	0	#
X1303	G-18	#	1-579-973-11
X1305	G-17	#	1-579-972-11

#: Not Mounted

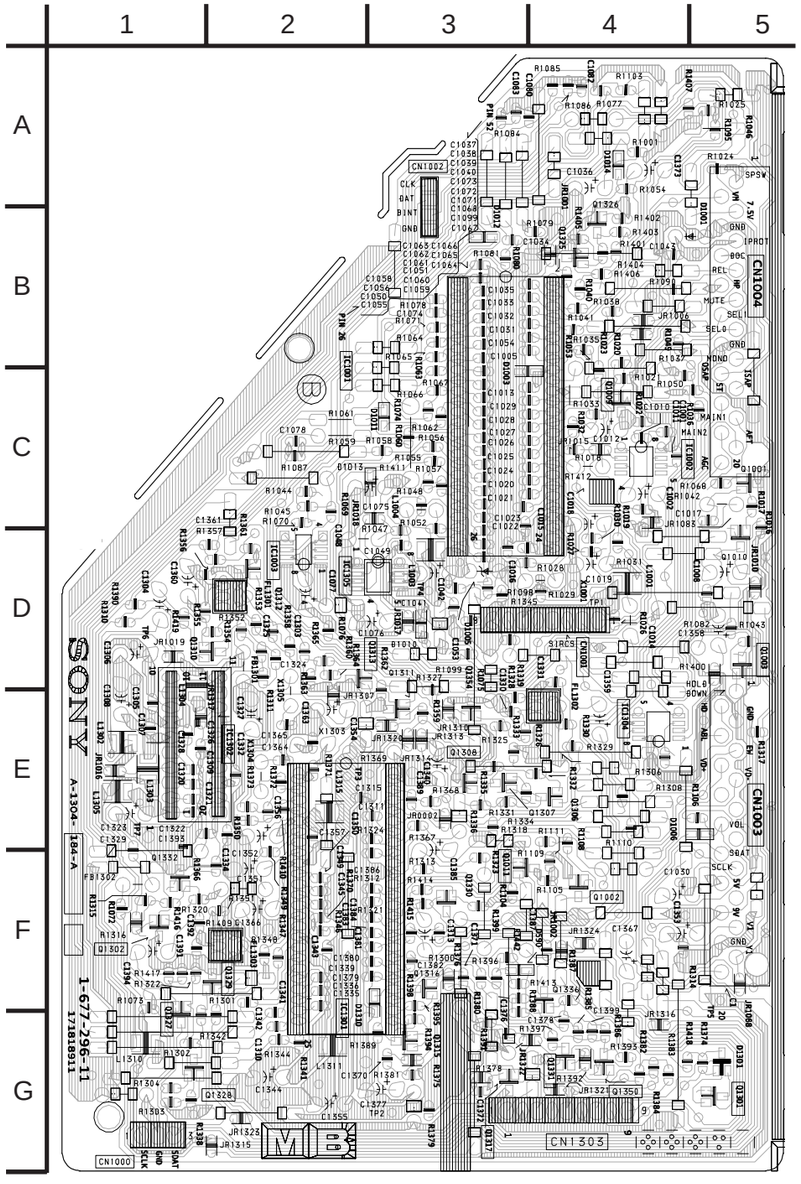
MB BOARD IC VOLTAGE LIST

IC1001		IC1003		43	5.1
pin	volt	pin	volt	44	8.7
1	1.7	1	GND	45	5.2
2	4.8	2	GND	46	4.6
3	0.0	3	GND	47	1.7
4	0.4	4	GND	48	0.2
5	0.0	5	4.8	**IC1302**	
6	0.1	6	4.8	pin	volt
7	NC	7	GND	1	5.0
8	0.0	8	5.0	2	1.4
9	0.0	**IC1301**		3	3.2
10	0.1	pin	volt	4	2.4
11	0.1	1	3.3	5	1.9
12	5.0	2	5.1	6	5.0
13	0.0	3	1.3	7	0.0
14	4.3	4	5.1	8	5.0
15	4.9	5	4.8	9	4.9
16	0.0	6	4.3	10	4.9
17	-0.2	7	6.3	11	0.0
18	4.9	8	5.0	12	0.0
19	5.0	9	5.1	13	2.5
20	2.1	10	GND	14	2.1
21	0.2	11	4.1	15	5.0
22	2.3	12	2.4	16	0.0
23	GND	13	3.5	17	2.5
24	2.2	14	3.5	18	3.2
25	2.3	15	5.4	19	1.9
26	0.0	16	7.7	20	2.4
27	4.9	17	1.6	**IC1304**	
28	2.2	18	3.5	pin	volt
29	2.3	19	2.3	1	4.6
30	5.0	20	2.6	2	0.1
31	0.0	21	1.5	3	4.6
32	5.0	22	1.5	4	0.1
33	2.4	23	1.6	5	4.6
34	4.4	24	1.4	6	8.9
35	5.0	25	NC	7	3.8
36	4.8	26	4.6	8	GND
37	4.8	27	4.6	**IC1305**	
38	4.8	28	4.6	pin	volt
39	4.8	29	0.0	1	GND
40	NC	30	4.5	2	5.0
41	0.0	31	4.5	3	1.6
42	0.1	32	4.5	4	7.4
43	5.0	33	8.7	5	5.0
44	0.1	34	4.9	6	GND
45	5.0	35	4.8	7	GND
46	0.0	36	0.2	8	NC
47	5.0	37	4.6		
48	0.0	38	5.3		
49	0.0	39	5.3		
50	0.0	40	GND		
51	0.0	41	5.1		
52	0.0	42	6.2		

All voltages are in V

MB

[TUNING CONTROL, Y/C/J]

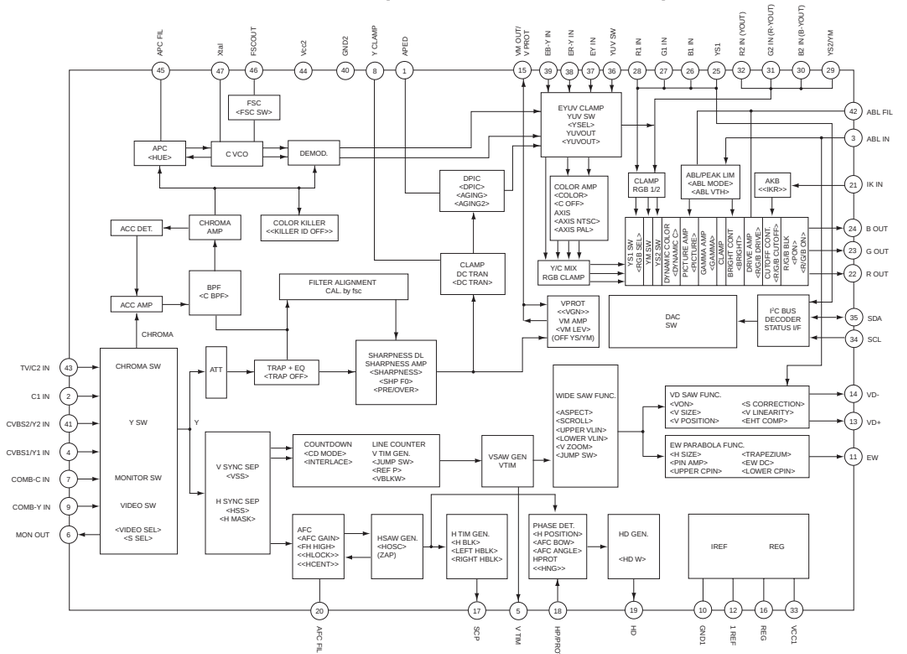


MB BOARD LOCATOR LIST

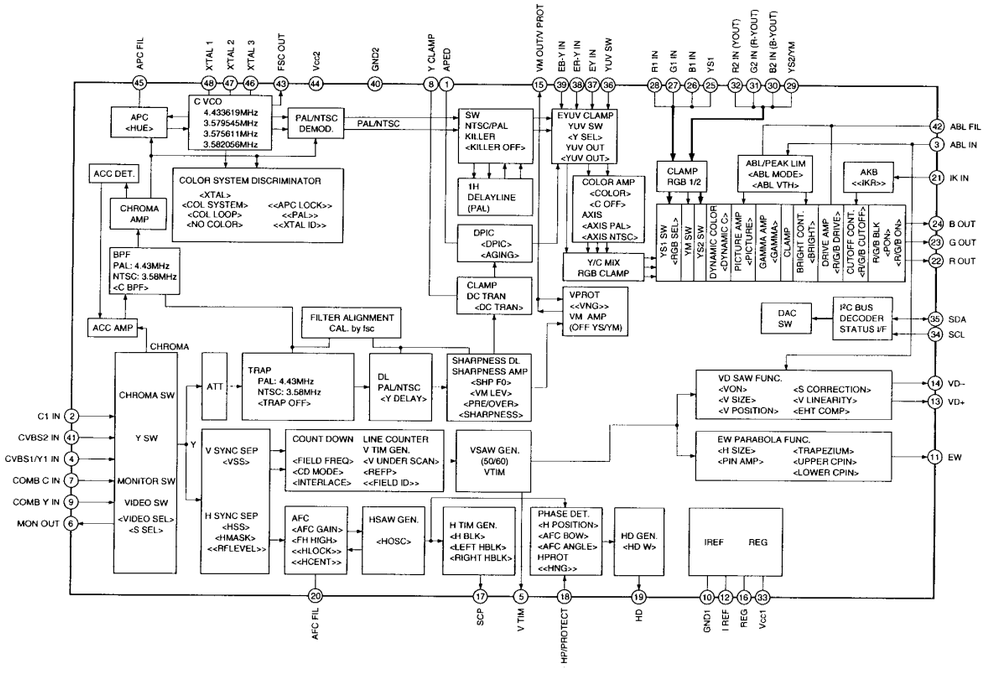
DIODE		D1013	C-2	IC1302	E-1	Q1010	C-5	Q1311	E-3	Q1327	F-2	Q1354	D-3
D1001	B-5	D1014	A-4	IC1304	E-4	Q1011	E-3	Q1312	D-2	Q1328	G-1	**CRYSTAL**	
D1003	C-3	D1301	G-5	IC1305	D-3	Q1301	G-5	Q1313	D-2	Q1329	F-2	X1001	D-4
D1005	D-3	D1310	F-3	**TRANSISTOR**		Q1302	F-1	Q1315	G-3	Q1330	F-3	X1303	E-2
D1006	D-3	**IC**		Q1001	C-5	Q1306	E-4	Q1316	F-3	Q1331	G-4	X1304	E-2
D1010	D-3	IC1001	C-3	Q1002	F-4	Q1307	E-3	Q1317	G-3	Q1332	F-1	X1305	E-2
D1011	C-3	IC1003	D-2	Q1003	D-5	Q1308	E-3	Q1325	B-4	Q1336	F-4		
D1012	B-3	IC1301	F-2	Q1009	C-4	Q1310	D-2	Q1326	B-4	Q1350	G-4		

MB BOARD IC BLOCK DIAGRAMS

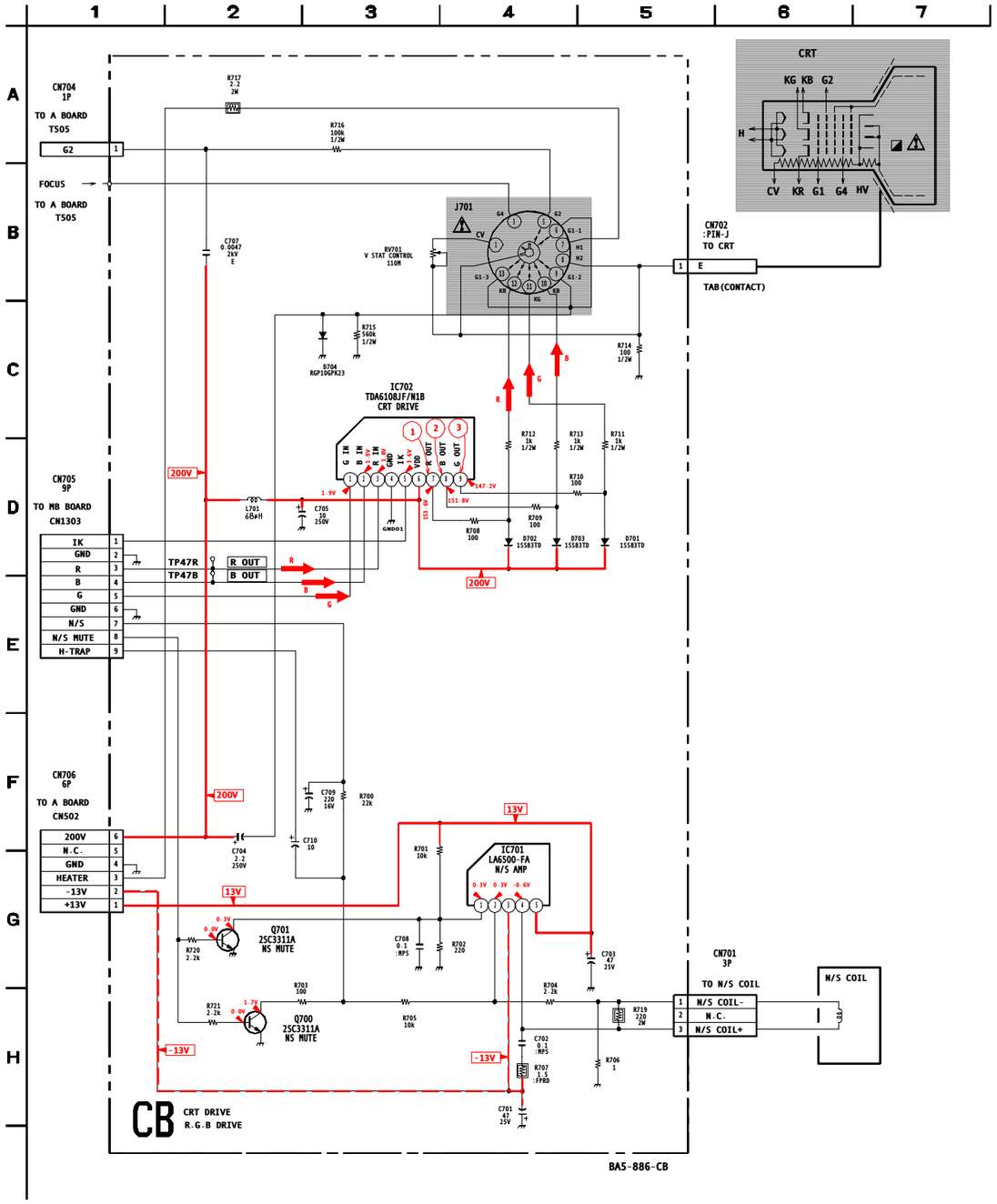
MB BOARD: IC1301 CXA2131AS (ALL EXCEPT KV-14FM12A)



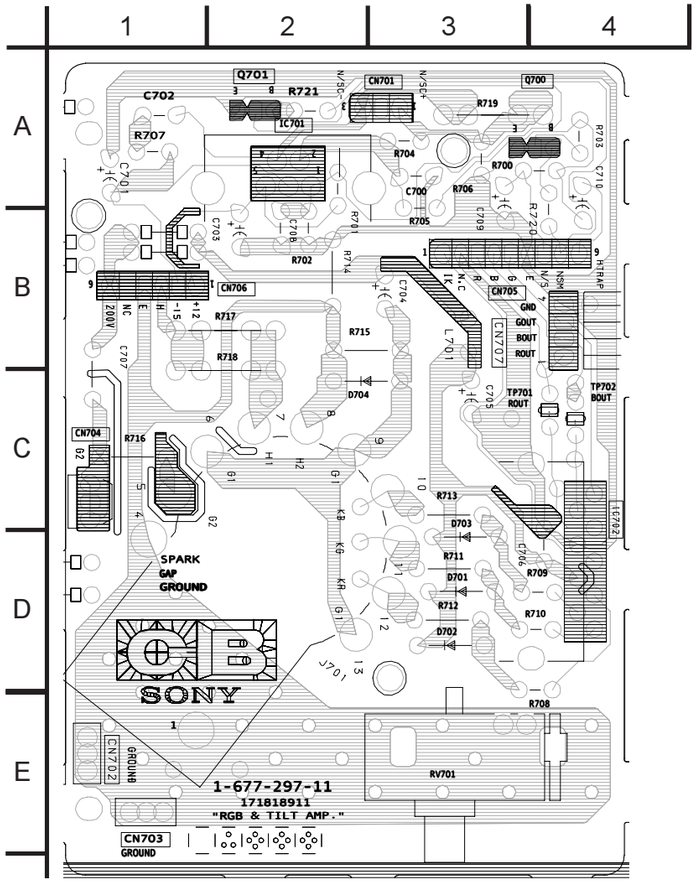
MB BOARD: IC1301 CXA2135S (KV-14FM12A ONLY)



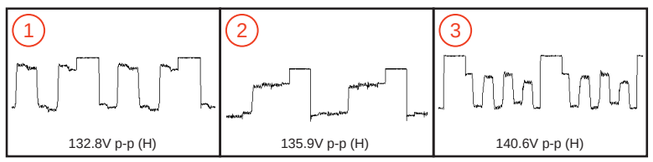
CB BOARD SCHEMATIC DIAGRAM



CB [CRT DRIVE, RGB DRIVE]

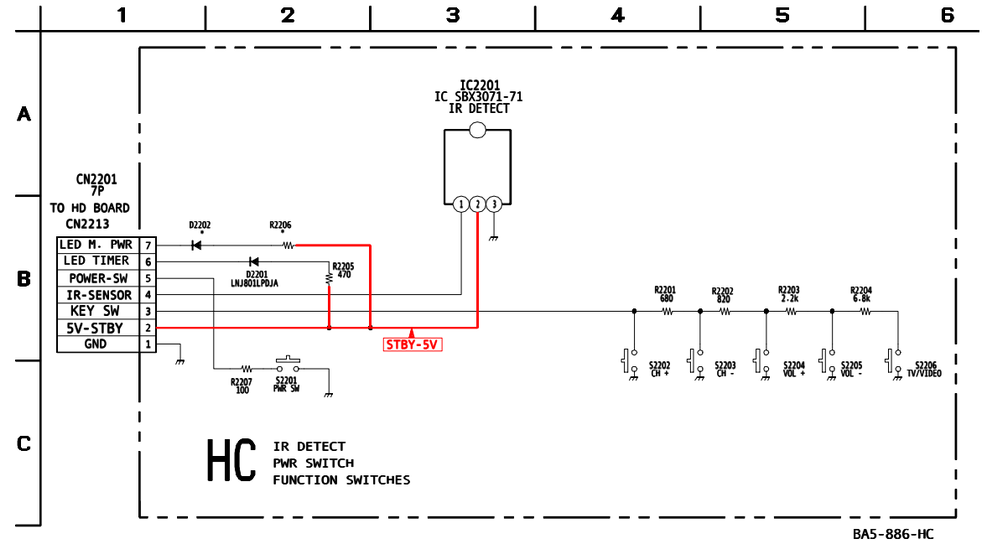


CB BOARD WAVEFORMS

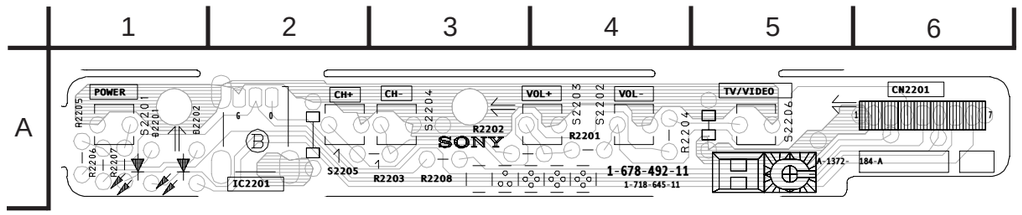


← MB Board CB Board →

HC BOARD SCHEMATIC DIAGRAM



HC [IR DETECT/POWER SWITCH FUNCTION SWITCHES]

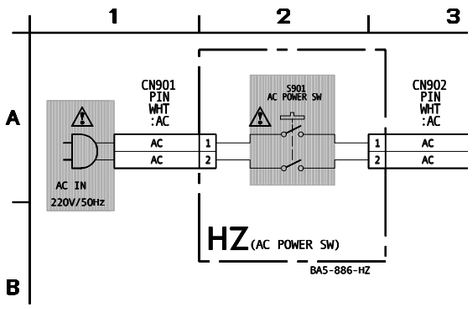


HC BOARD MARK (*) LIST

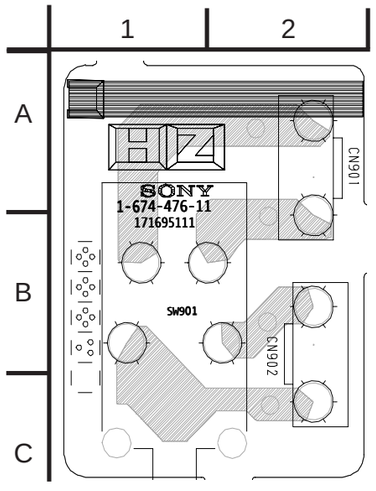
REF NO.	LOC.	KV-13FM12 KV-13FM13 KV-13FM14 KV-14FM12 KV-14FM12C KV-14FM14	KV-14FM12A
D2202	B-1	#	LNJ801LPDJA

#: Not Mounted

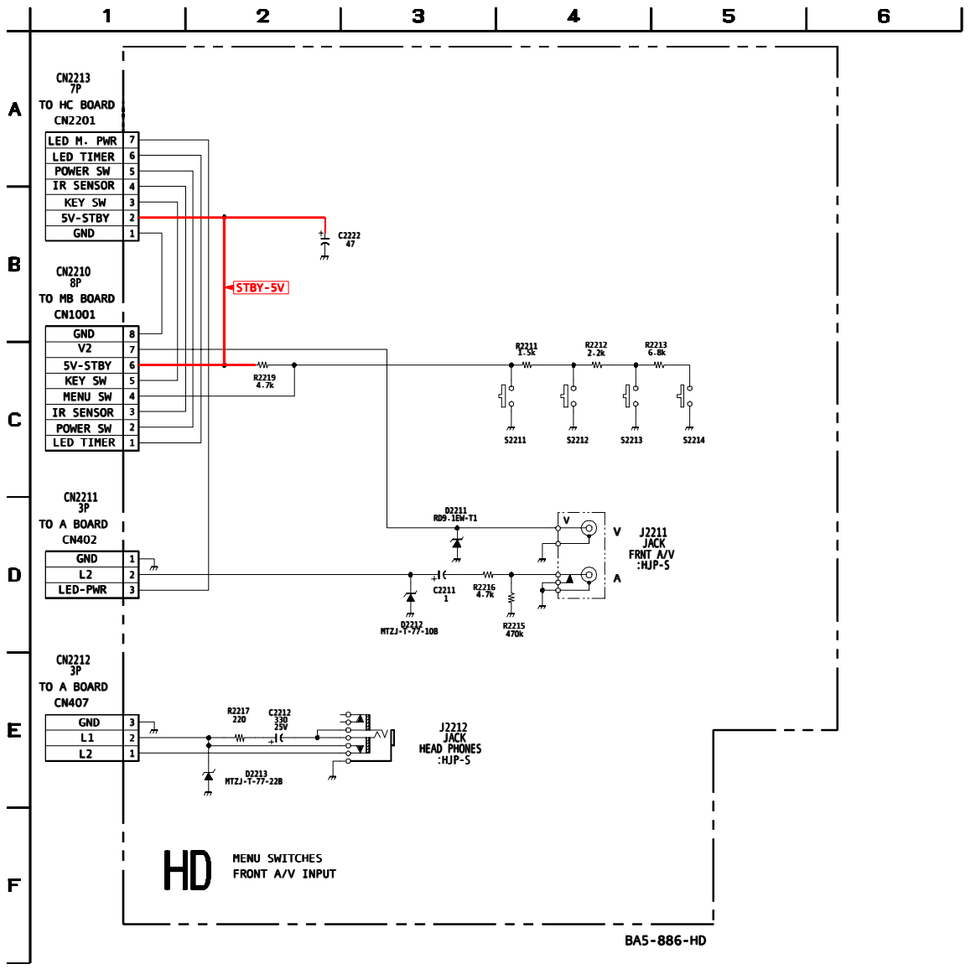
HZ BOARD SCHEMATIC DIAGRAM (KV-14FM12A ONLY)



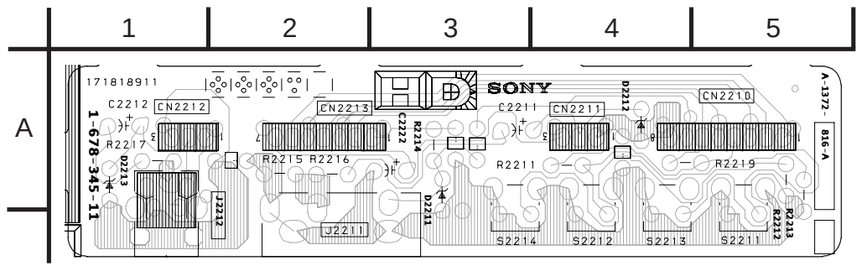
HZ [AC POWER SWITCH] (KV-14FM12A ONLY)



HD BOARD SCHEMATIC DIAGRAM

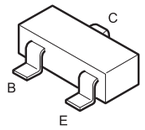


HD [MENU SWITCHES, FRONT A/V INPUT]

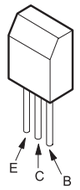


6-4. SEMICONDUCTORS

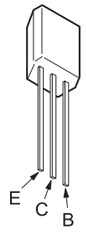
2SB709A-QRS-TX
2SD601A-QRS-TX
2SC2412K-T-146-QR



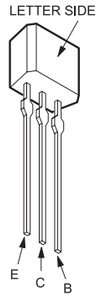
2SC3209LK-TP



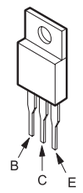
2SC331740S-QRT



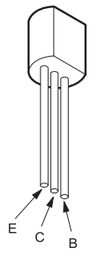
2SA1309A-QRT
2SC3311A-QRSTA
2SD2144S-TP-UVW



2SA1837
2SC4159-E



2SA1091O-TPE2
2SA993AS-QRT



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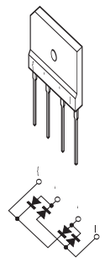
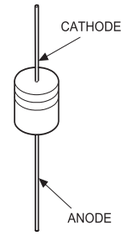
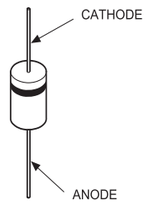


1SS133T-77
D1N2OR-TA
D1NS4-TA
MTZJ-T-7712C
MTZJ-T-77-39
RD8.2ES-T1B



ERC06-15S
MTZJ-T-77-5.1C
MTZJ-T-775.6C
MTZJ-T-77-7.5A
MTZJ-T-77-8.2B
MTZJ-T-77-10B
MTZJ-T-7730D
RD10ES-T1B



1SS83TD
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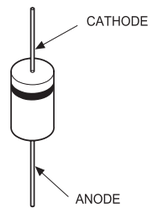
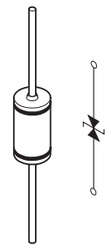
EL1Z-V1
ERA22-08TP3
GP08DPKG23
RGP10GPKG23
RU4AM-T3



RD9.1EW-T1



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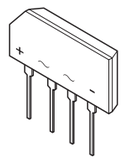

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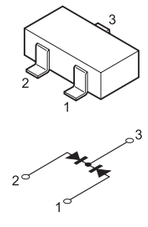
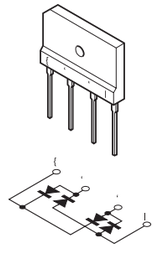
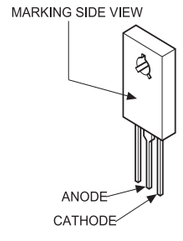


D4SB60L-F



D5LC20U



SECTION 7
EXPLODED VIEW

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The component parts of an assembly are indicated by the reference numbers in the remarks column.
- Items marked * are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note:

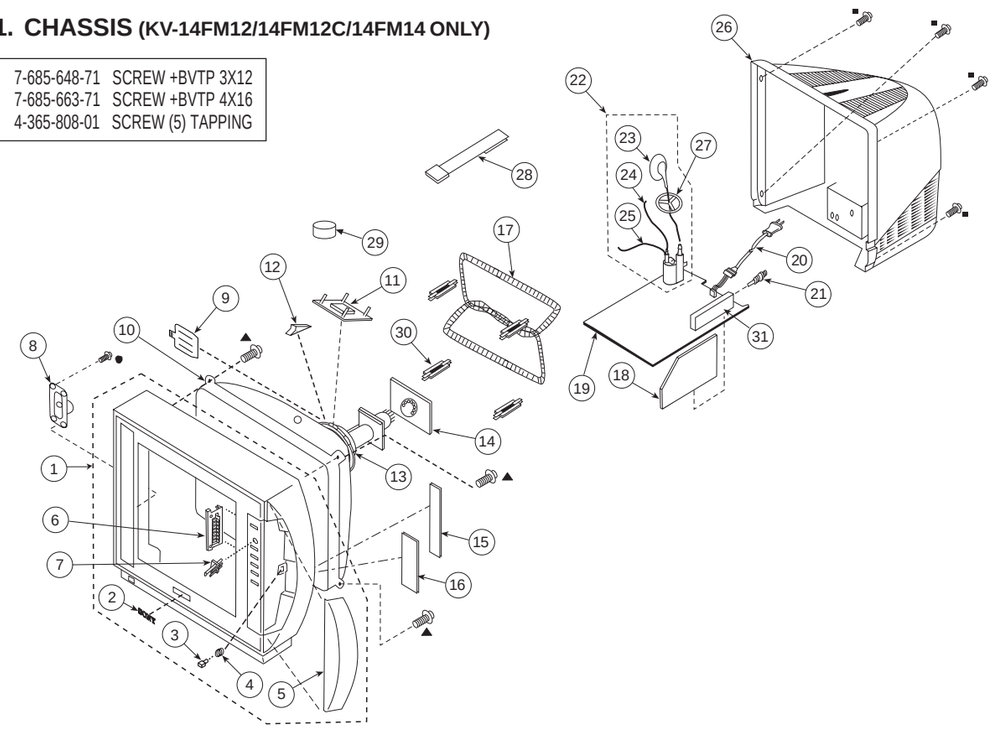
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

7-1. CHASSIS (KV-14FM12/14FM12C/14FM14 ONLY)

● 7-685-648-71 SCREW +BVTP 3X12
■ 7-685-663-71 SCREW +BVTP 4X16
▲ 4-365-808-01 SCREW (5) TAPPING



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		X-4037-633-1	BEZNET ASSY (KV-14FM12/14FM12C ONLY)	2-5
1		X-4037-632-1	BEZNET ASSY (KV-14FM14 ONLY)	2-5
2		3-704-176-61	EMBLEM (NO.6), SONY	
3		4-392-036-01	CATCHER, PUSH	
4		4-076-248-01	SPRING, DOOR	
5		4-075-399-01	DOOR, CONTROL	
6		4-075-400-01	BUTTON, MULTI	
7		4-075-401-01	GUIDE, LED	
8		1-529-613-11	SPEAKER (9X5CM)	
9		2-163-920-01	PLATE, TLH CORRECTION	
10	⚠	8-735-570-05	CRT14RSN	
11		1-419-560-11	COIL, NA ROTATION	
12		4-053-005-01	SPACER, DY	
13	⚠	8-451-401-11	DY Y14RSA-S	
14	*	A-1332-062-A	CB (VAR) MOUNTED PC BOARD	
15	*	A-1372-814-A	HC (VAR) MOUNTED PC BOARD	
16	*	A-1372-816-A	HD (COM) MOUNTED PC BOARD	
17	⚠	1-419-559-11	COIL, DEGAUSSING	

REF. NO.		PART NO.	DESCRIPTION	REMARK
18	*	A-1304-197-A	MB (VAR) MOUNTED PC BOARD	
19	*	A-1299-248-A	A COMPLETE PC BOARD	
			The high-voltage leads associated with the FBT on this board are not included and must be ordered separately. (See 23-25)	
20	⚠	1-791-935-11	CORD, AC POWER(WITH CONNECTOR) (KV-14FM12/14FM14 ONLY)	
20	⚠	1-769-796-31	CORD, POWER (WITH CONNECTOR) (KV-14FM12C ONLY)	
21		1-766-374-11	PLUG, F-PIN	
22	⚠	1-453-339-11	FBT ASSY NX-1912//M3E4	23-25
23		1-473-159-11	HV CAP ASSY	
24		1-900-800-65	FOCUS LEAD	
25		1-900-803-22	G2 LEAD	
26		4-076-249-01	COVER, REAR (KV-14FM12/14FM12C ONLY)	
26		4-076-249-21	COVER, REAR (KV-14FM14 ONLY)	
27		3-704-372-31	HOLDER, HV CABLE	
28		4-051-735-22	PIECE A(75), CONV. CORRECT	
29		1-452-032-00	MAGNET,DISC	
30		4-069-972-01	CLIP (14RSN), DGC	
31	⚠	8-598-501-00	TUNER, FSS BTF-FA402	

Note:

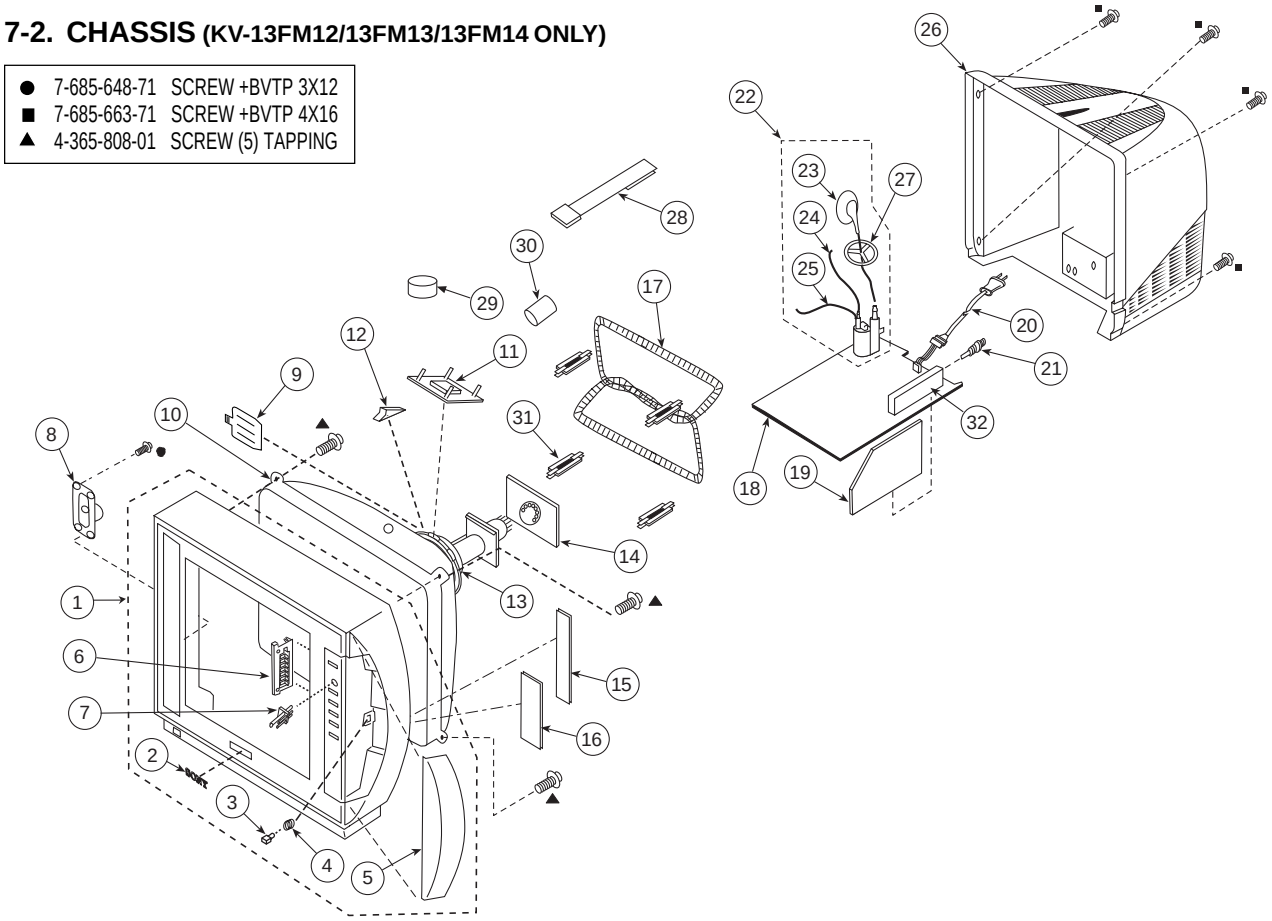
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

7-2. CHASSIS (KV-13FM12/13FM13/13FM14 ONLY)

● 7-685-648-71 SCREW +BVTP 3X12
■ 7-685-663-71 SCREW +BVTP 4X16
▲ 4-365-808-01 SCREW (5) TAPPING



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		X-4037-632-1	BEZNET ASSY (KV-13FM14 ONLY)	2-5
1		X-4037-633-1	BEZNET ASSY (KV-13FM12 ONLY)	2-5
1		X-4037-635-1	BEZNET ASSY (KV-13FM13 ONLY)	2-5
2		3-704-176-61	EMBLEM (NO.6), SONY	
3		4-392-036-01	CATCHER, PUSH	
4		4-076-248-01	SPRING, DOOR	
5		4-075-399-01	DOOR, CONTROL	
6		4-075-400-01	BUTTON, MULTI	
7		4-075-401-01	GUIDE, LED	
8		1-529-613-11	SPEAKER (9X5CM)	
9		2-163-920-01	PLATE, TLH CORRECTION	
10	⚠	8-735-570-05	CRT 14RSN	
11		1-419-560-11	COIL, NA ROTATION	
12		4-053-005-01	SPACER, DY	
13	⚠	8-451-401-11	DY Y14RSA-S	
14	*	A-1332-062-A	CB (VAR) MOUNTED PC BOARD	
15	*	A-1372-814-A	HC (VAR) MOUNTED PC BOARD	
16	*	A-1372-816-A	HD (COM) MOUNTED PC BOARD	
17	⚠	1-419-558-11	COIL, DEGAUSSING	
18	*	A-1299-219-A	A COMPLETE PC BOARD	
			The high-voltage leads associated with the FBT on this board are not included and must be ordered separately. (See 23-25)	

REF. NO.		PART NO.	DESCRIPTION	REMARK
19	*	A-1304-197-A	MB (VAR) MOUNTED PC BOARD	
20	⚠	1-791-935-11	CORD, AC POWER(WITH CONNECTOR) (KV-13FM12 CND/13FM14 ONLY)	
20	⚠	1-790-317-21	CORD, AC POWER(WITH CONNECTOR) (KV-13FM12 ONLY)	
20	⚠	1-790-316-31	CORD, AC POWER(WITH CONNECTOR) (KV-13FM13 ONLY)	
21		1-766-374-11	PLUG, F-PIN	
22	⚠	1-453-339-11	FBT ASSY NX-1912//M3E4	23-25
23		1-473-159-11	HV CAP ASSY	
24		1-900-800-65	FOCUS LEAD	
25		1-900-803-22	G2 LEAD	
26		4-076-249-01	COVER, REAR (KV-13FM12 ONLY)	
26		4-076-249-11	COVER, REAR (KV-13FM13 ONLY)	
26		4-076-249-21	COVER, REAR (KV-13FM14 ONLY)	
27		3-704-372-31	HOLDER, HV CABLE	
28		4-051-735-22	PIECE A(75), CONV. CORRECT	
29		1-452-032-00	MAGNET,DISC	
30		1-500-586-11	FILTER, CLAMP (FERRITE CORE) (KV-13FM13 ONLY)	
31		4-069-972-01	CLIP (14RSN), DGC	
32	⚠	8-598-501-00	TUNER, FSS BTF-FA402	

Note:

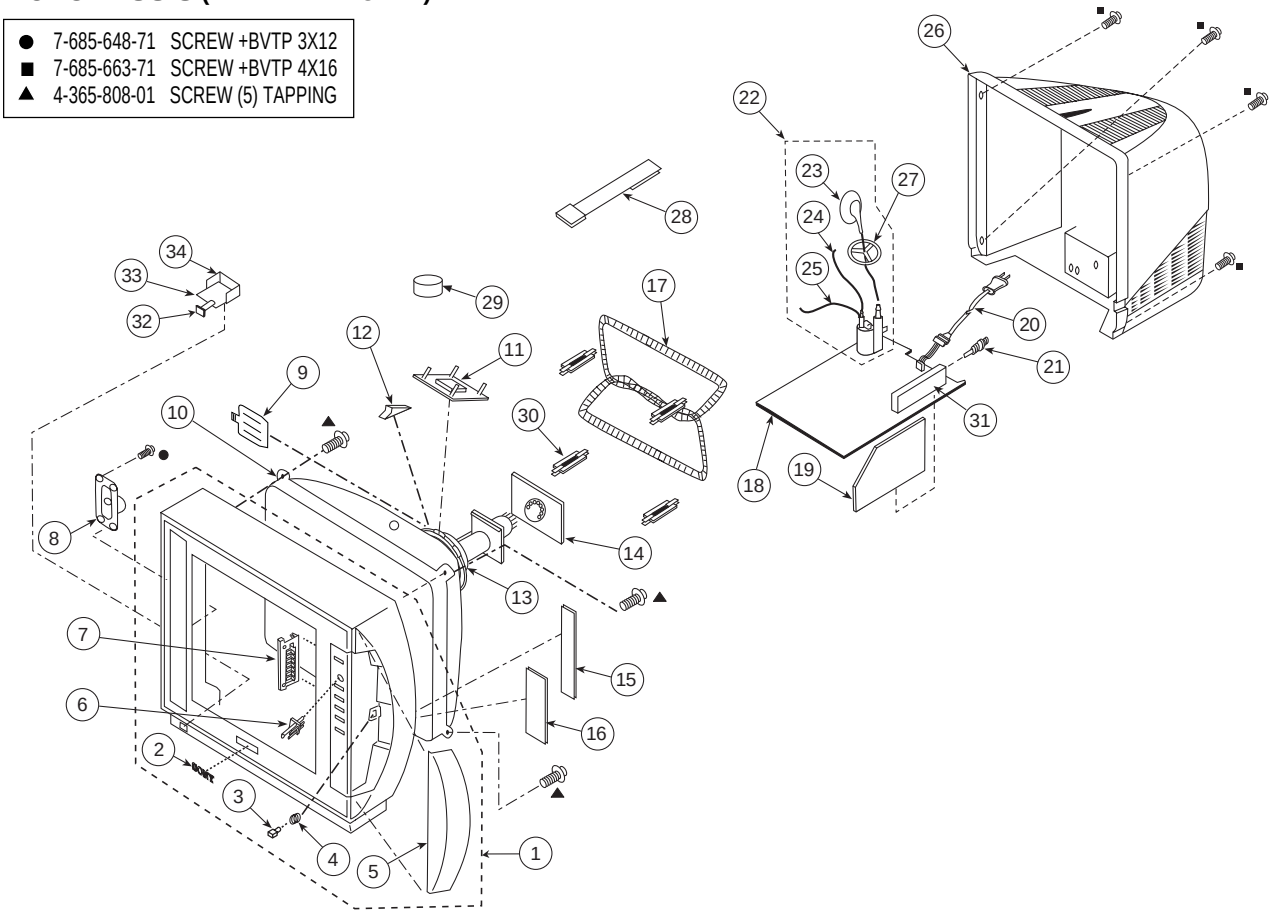
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

7-3. CHASSIS (KV-14FM12A ONLY)

● 7-685-648-71 SCREW +BVTP 3X12
■ 7-685-663-71 SCREW +BVTP 4X16
▲ 4-365-808-01 SCREW (5) TAPPING



REF. NO.		PART NO.	DESCRIPTION	REMARK
1		X-4037-634-1	BEZNET ASSY	2-5
2		3-704-176-61	EMBLEM (NO.6), SONY	
3		4-392-036-01	CATCHER, PUSH	
4		4-076-248-01	SPRING, DOOR	
5		4-075-399-01	DOOR, CONTROL	
6		4-075-401-11	GUIDE, LED	
7		4-075-400-01	BUTTON, MULTI	
8		1-529-613-11	SPEAKER (9X5CM)	
9		2-163-920-01	PLATE, TLH CORRECTION	
10	⚠	8-735-570-05	CRT 14RSN	
11		1-419-560-11	COIL, NA ROTATION	
12		4-053-005-01	SPACER, DY	
13	⚠	8-451-401-11	DY Y14RSA-S	
14	*	A-1332-062-A	CB (VAR) MOUNTED PC BOARD	
15	*	A-1372-813-A	HC (VAR) MOUNTED PC BOARD	
16	*	A-1372-816-A	HD (COM) MOUNTED PC BOARD	
17	⚠	1-419-559-11	COIL, DEGAUSSING	
18	*	A-1299-275-A	A COMPLETE PC BOARD	
			The high-voltage leads associated with the FBT on this board are not included and must be ordered separately. (See 23-25)	

REF. NO.		PART NO.	DESCRIPTION	REMARK
19	*	A-1304-195-A	MB (VAR) MOUNTED PC BOARD	
20	⚠	1-783-838-31	CORD, POWER (WITH CONNECTOR)	
21		1-766-374-11	PLUG, F-PIN	
22	⚠	1-453-339-11	FBT ASSY NX-1912//M3E4	23-25
23		1-473-159-11	HV CAP ASSY	
24		1-900-800-65	FOCUS LEAD	
25		1-900-803-22	G2 LEAD	
26		4-076-249-01	COVER, REAR	
27		3-704-372-31	HOLDER, HV CABLE	
28		4-051-735-22	PIECE A(75), CONV. CORRECT	
29		1-452-032-00	MAGNET,DISC	
30		4-069-972-01	CLIP (14RSN), DGC	
31	⚠	8-598-501-00	TUNER, FSS BTF-FA402	
32		4-076-251-01	BUTTON, MAIN POWER	
33	*	A-1372-117-A	MOUNTED PWB, HZ	
34		4-076-252-01	BRACKET, MAIN POWER	

SECTION 8
ELECTRICAL PARTS LIST

A

Note:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by ⋈ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

- Items marked * are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

REF. NO.	PART NO.	DESCRIPTION	REMARK

A

*	A-1299-219-A	A COMPLETE PC BOARD (KV-13FM12/13FM13/13FM14 ONLY)	
*	A-1299-275-A	A COMPLETE PC BOARD (KV-14FM12A ONLY)	
*	A-1299-248-A	A COMPLETE PC BOARD (KV-14FM12/KV14FM12C/14FM14 ONLY)	

The high voltage leads associated with the FBT on this board are not included and must be ordered separately. Order the following leads when requesting this A Board:

	1-251-642-52	HV CAP ASSY
	1-900-803-22	G2 LEAD
	1-900-800-65	FOCUS LEAD
	1-533-223-11	HOLDER, FUSE
*	4-374-846-11	COVER, CAPACITOR, CAP TYPE
	4-382-854-11	SCREW (M3X10), P, SW (+)

CAPACITOR

REF. NO.	PART NO.	DESCRIPTION			REMARK
C100	1-164-346-11	CERAMIC CHIP	1µF		16V
C101	1-164-346-11	CERAMIC CHIP	1µF		16V
C102	1-126-933-11	ELECT	100µF	20%	16V
C104	1-126-941-11	ELECT	470µF	20%	25V
C105	1-104-664-11	ELECT	47µF	20%	25V
C204	1-163-017-00	CERAMIC CHIP	0.0047µF	10%	50V
C205	1-126-963-11	ELECT	4.7µF	20%	50V
C208	1-126-963-11	ELECT	4.7µF	20%	50V
C214	1-164-346-11	CERAMIC CHIP	1µF		16V
C219	1-126-964-11	ELECT	10µF	20%	50V
C402	1-126-943-11	ELECT	2200µF	20%	25V
C403	1-126-957-11	ELECT	0.22µF	20%	50V
C420	1-164-222-11	CERAMIC CHIP	0.22µF		25V
C442	1-126-963-11	ELECT	4.7µF	20%	50V
C443	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C444	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C445	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C501	1-102-112-00	CERAMIC	330PF	10%	50V
C502	1-106-383-00	MYLAR	0.047µF	10%	200V
C503	1-102-212-00	CERAMIC	820PF	10%	500V
C504	1-102-002-00	CERAMIC	680PF	10%	500V
C505	1-162-134-11	CERAMIC	470PF	10%	2KV
C506	1-162-318-11	CERAMIC	0.001µF	10%	500V
C507	⚠ 1-117-638-11	FILM	5700PF	3%	1.2KV
C508	1-137-150-11	MYLAR	0.01µF	10%	100V
C509	1-162-116-00	CERAMIC	680PF	10%	2KV
C510	1-107-649-11	ELECT	2.2µF	20%	250V
C511	⚠ 1-117-666-11	FILM	0.39µF	5%	250V
C512	⚠ 1-104-999-11	MYLAR	0.1µF	10%	200V
C513	1-104-987-11	MYLAR	0.001µF	10%	100V
C514	⚠ 1-109-844-11	FILM	0.68µF	5%	250V
C515	1-162-116-00	CERAMIC	680PF	10%	2KV
C520	⚠ 1-129-719-00	FILM	0.027µF	5%	400V
C521	1-164-646-11	CERAMIC	2200PF	10%	500V
C523	1-126-941-11	ELECT	470µF	20%	25V
C524	1-102-244-00	CERAMIC	220PF	10%	500V
C525	1-162-815-11	CERAMIC	47PF	5%	500V
C526	1-126-960-11	ELECT	1µF	20%	50V
C527	1-126-965-11	ELECT	22µF	20%	50V
C528	1-164-161-11	CERAMIC CHIP	0.0022µF	10%	50V
C529	1-164-161-11	CERAMIC CHIP	0.0022µF	10%	50V
C530	1-164-161-11	CERAMIC CHIP	0.0022µF	10%	50V
C531	1-106-387-00	MYLAR	0.068µF	10%	200V
C533	1-126-941-11	ELECT	470µF	20%	25V
C534	⚠ 1-126-964-11	ELECT	10µF	20%	50V
C535	1-126-959-11	ELECT	0.47µF	20%	50V
C537	⚠ 1-126-963-11	ELECT	4.7µF	20%	50V
C539	1-107-645-11	ELECT	22µF	20%	160V
C540	1-107-645-11	ELECT (KV-13FM12/13FM13/13FM14 ONLY)	22µF	20%	160V
C540	1-107-635-11	ELECT (ALL EXCEPT KV-13FM12/13FM13/13FM14)	4.7µF	20%	160V
C541	1-126-969-11	ELECT	220µF	20%	50V
C542	1-126-967-11	ELECT	47µF	20%	50V
C543	1-137-194-81	MYLAR	0.47µF	5%	50V
C546	⚠ 1-107-635-11	ELECT	4.7µF	20%	160V
C547	⚠ 1-163-031-11	CERAMIC CHIP	0.01µF		50V
C548	1-123-024-21	ELECT	33µF		160V

A

Note:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

REF. NO.		PART NO.	DESCRIPTION	REMARK		
C549	⚠	1-126-934-11	ELECT	220µF	20%	16V
C551		1-107-364-11	MYLAR	0.01µF	10%	200V
C553		1-107-662-11	ELECT	22µF	20%	250V
C601		1-164-004-11	CERAMIC CHIP	0.1µF	10%	25V
C602		1-126-967-11	ELECT	47µF	20%	50V
C604		1-164-182-11	CERAMIC CHIP	0.0033µF	10%	50V
C606	⚠	1-113-923-11	CERAMIC	3300PF	20%	250V
C607	⚠	1-136-311-11	MYLAR	0.47µF	20%	125V
			(ALL EXCEPT KV-14FM12A)			
C607	⚠	1-130-711-00	FILM	0.22µF	20%	250V
			(KV-14FM12A ONLY)			
C611	⚠	1-113-923-11	CERAMIC	0.0033µF	20%	250V
C612	⚠	1-117-893-11	ELECT	470µF	20%	250V
			(KV-13FM12/13FM13/13FM14 ONLY)			
C612	⚠	1-128-714-11	ELECT	330µF	20%	400V
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
C617		1-125-893-11	FILM	680PF	3%	1.5KV
C618		1-164-081-11	CERAMIC	470PF	10%	50V
C619		1-136-356-11	MYLAR	470PF	5%	50V
C620		1-104-665-11	ELECT	100µF	20%	25V
C621		1-117-214-11	CERAMIC	0.001µF	10%	2KV
C622		1-164-625-11	CERAMIC	680PF	10%	500V
C623		1-164-625-11	CERAMIC	680PF	10%	500V
C624		1-131-867-51	ELECT	100µF		160V
C625		1-135-412-51	ELECT	1000µF	20%	25V
C626		1-135-412-51	ELECT	1000µF	20%	25V
C627		1-136-189-00	MYLAR	0.1µF	10%	250V
C628		1-104-665-11	ELECT	100µF	20%	25V
C630		1-113-924-11	CERAMIC	0.0047µF	20%	250V
			(KV-13FM12/13FM13/13FM14 ONLY)			
C631		1-113-924-11	CERAMIC	0.0047µF	20%	250V
			(KV-13FM12/13FM13/13FM14 ONLY)			
C634		1-137-605-11	MYLAR	0.01µF	10%	250V
C635		1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C636		1-126-970-11	ELECT	330µF	20%	50V
C637		1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C638		1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C639		1-126-965-11	ELECT	22µF	20%	50V
C641		1-107-679-91	ELECT	10µF	20%	450V
C643		1-104-760-11	CERAMIC CHIP	0.047µF	10%	50V
C644		1-161-964-91	CERAMIC	0.0047µF		250V
C645		1-161-964-91	CERAMIC	0.0047µF		250V
C646		1-161-964-91	CERAMIC	0.0047µF		250V
C647		1-161-964-91	CERAMIC	0.0047µF		250V
C648		1-136-346-21	MYLAR	0.22µF	20%	125V
C652		1-130-471-00	MYLAR	0.001µF	5%	50V
C654		1-107-636-11	ELECT	10µF	20%	160V
C655	⚠	1-136-311-11	MYLAR	0.47µF	20%	125V
			(ALL EXCEPT KV-14FM12A)			
C655	⚠	1-130-711-00	FILM	0.22µF	20%	250V
			(KV-14FM12A ONLY)			
C657		1-104-664-11	ELECT	47µF	20%	25V
C658		1-135-412-51	ELECT	1000µF	20%	25V
C699		1-117-703-11	CERAMIC	0.0047µF	20%	250V
			(KV-13FM12/13FM13/13FM14 ONLY)			

CONNECTOR

CN402	*	1-564-506-11	PLUG, CONNECTOR 3P
CN406	*	1-564-505-11	PLUG, CONNECTOR 2P
CN407	*	1-564-506-11	PLUG, CONNECTOR 3P
CN501	*	1-580-798-11	CONNECTOR PIN (DY) 6P
CN502	*	1-564-509-11	PLUG, CONNECTOR 6P
CN601	*	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P
CN602	* ⚠	1-580-843-11	PIN, CONNECTOR (POWER)
CN2002		1-573-298-21	CONNECTOR, BOARD TO BOARD 20P
CN2009		1-573-298-21	CONNECTOR, BOARD TO BOARD 20P

DIODE

D204		8-719-982-22	DIODE MTZJ-T-77-30D
D208		8-719-110-17	DIODE MTZJ-T-77-10B
D210		8-719-110-17	DIODE MTZJ-T-77-10B
D401		8-719-110-17	DIODE MTZJ-T-77-10B
D403		8-719-073-01	DIODE MA111-TX
D502		8-719-908-03	DIODE GP08DPKG23
D503		8-719-908-03	DIODE GP08DPKG23
D504	⚠	8-719-945-80	DIODE ERC06-15S
D505	⚠	8-719-979-85	DIODE RGP15GPKG23
D506		8-719-302-43	DIODE RGP10GPKG3
D507		8-719-991-33	DIODE 1SS133T-77
D508		8-719-991-33	DIODE 1SS133T-77
D509		8-719-921-44	DIODE MTZJ-T-77-5.1C
D510		8-719-908-03	DIODE GP08DPKG23
D511		8-719-302-43	DIODE RGP10GPKG23
D513		8-719-979-85	DIODE RGP15GPKG23
D514		8-719-979-85	DIODE RGP15GPKG23
D516	⚠	8-719-991-33	DIODE 1SS133T-77
D517	⚠	8-719-991-33	DIODE 1SS133T-77
D518	⚠	8-719-110-08	DIODE RD8.2ES-T1B
D519	⚠	8-719-302-43	DIODE EL1Z-V1
D520	⚠	8-719-073-01	DIODE MA111-TX
D601		8-719-991-33	DIODE 1SS133T-77
D602		8-719-991-33	DIODE 1SS133T-77
D605	⚠	8-719-510-53	DIODE D4SB60L-F
D610		8-719-510-02	DIODE D1NS4-TA
D611		8-719-063-70	DIODE D1NL20U-TA
D612		8-719-110-17	DIODE MTZJ-T-77-10B
D613		8-719-063-70	DIODE D1NL20U-TA
D614		8-719-063-70	DIODE D1NL20U-TA
D615		8-719-312-10	DIODE RU4AM-T3
D616		8-719-510-37	DIODE D5LC20U

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Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

REF. NO.		PART NO.	DESCRIPTION	REMARK
D617		8-719-110-31	DIODE MTZJ-T-77-12C	
D618		8-719-991-33	DIODE 1SS133T-77	
D619		8-719-110-17	DIODE MTZJ-T-77-10B	
D620		8-719-510-37	DIODE D5LC20U	
D622		8-719-077-76	DIODE D2SB60A-F04	
D623		8-719-948-45	DIODE ERA22-08TP3	
D624		8-719-991-33	DIODE 1SS133T-77	
D625		8-719-991-33	DIODE 1SS133T-77	
D626		8-719-063-70	DIODE D1NL20U-TA	
D627		8-719-110-03	DIODE MTZJ-T-77-7.5A	
D628		8-719-510-48	DIODE D1N20R-TA	

FUSE

F601	⚠	1-576-193-11	FUSE 6.3A/125V	
			(KV-13FM12/13FM13/13FM14 ONLY)	
F601	⚠	1-532-506-51	FUSE 6.3A/250V	
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)	

FERRITE BEAD

FB501		1-410-397-21	FERRITE	1.1µH
FB502		1-410-397-21	FERRITE	1.1µH
FB503		1-410-397-21	FERRITE	1.1µH
FB600		1-412-911-11	FERRITE	0µH
FB601		1-412-911-11	FERRITE	0µH
FB602		1-412-911-11	FERRITE	0µH
FB603		1-412-911-11	FERRITE	0µH
FB604		1-412-911-11	FERRITE	0µH
FB605		1-412-911-11	FERRITE	0µH
FB606		1-412-911-11	FERRITE	0µH
FB609		1-412-911-11	FERRITE	0µH
FB610		1-412-911-11	FERRITE	0µH

IC

IC401		8-759-490-17	IC TDA7057AQ/N2	
IC405		8-759-450-93	IC NJM2521M-TE1	
IC501	⚠	8-759-700-07	IC NJM2903M-TE2	
IC502		8-759-980-58	IC TDA8172	
IC601	⚠	8-749-015-60	IC STR-F6624	
			(KV-13FM12/13FM13/13FM14 ONLY)	
IC601	⚠	8-749-013-75	IC STR-F6654	
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)	
IC602	⚠	8-749-016-47	IC EA135-F12	
IC603		8-759-198-03	IC PQ09RF21	
IC604		8-759-701-75	IC NJM7805FA	

JACK

J201		1-794-115-11	JACK BLOCK, PIN 2P	

CHIP CONDUCTOR

JR001		1-216-295-91	SHORT	
JR002		1-216-295-91	SHORT	
JR403		1-216-295-91	SHORT	
JR414		1-216-295-91	SHORT	
			(KV-13FM12/13FM13/13FM14 ONLY)	
JR430		1-216-295-91	SHORT	
JR503		1-216-295-91	SHORT	
JR505		1-216-295-91	SHORT	
JR520		1-216-295-91	SHORT	
JR521		1-216-295-91	SHORT	
JR524		1-216-295-91	SHORT	
JR525		1-216-295-91	SHORT	
JR528		1-216-295-91	SHORT	
JR529		1-216-295-91	SHORT	
JR2001		1-216-295-91	SHORT	

COIL

L101		1-412-029-11	INDUCTOR CHIP	10µH
L102		1-412-032-11	INDUCTOR CHIP	100µH
L103		1-412-029-11	INDUCTOR CHIP	10µH
L501	⚠	1-409-955-11	INDUCTOR	8mH
L502		1-412-552-11	INDUCTOR	2.2mH
L503		1-406-677-11	INDUCTOR	10mH
L504		1-412-533-21	INDUCTOR	47µH
L508		1-406-982-41	INDUCTOR	680µH
L509	⚠	1-419-488-11	COIL, HORIZONTAL LINEARITY	
L510		1-412-528-11	INDUCTOR	18µH
L603		1-412-529-11	INDUCTOR	22µH
L604		1-412-525-31	INDUCTOR	10µH
L605		1-412-529-11	INDUCTOR	22µH

PHOTO COUPLER

PH601	⚠	8-749-010-64	PHOTO COUPLER PC123FY2	

IC LINK

PS401	⚠	1-576-413-21	LINK, IC	

TRANSISTOR

Q101		8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q411		8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q501		8-729-140-50	TRANSISTOR 2SC3209LK-TP	
Q502	⚠	8-729-051-69	TRANSISTOR 2SD2624	
Q503	⚠	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q504		8-729-809-29	TRANSISTOR 2SC4159-E	
Q505	⚠	8-729-200-17	TRANSISTOR 2SA1091O-TPE2	

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Note:

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Note:

The components identified by ⋈ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding x-ray radiation. Should replacement be required, replace only with the value originally used.

REF. NO.		PART NO.	DESCRIPTION	REMARK
Q506	⚠	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q507	⚠	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q604		8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q605	⚠	8-729-046-40	TRANSISTOR 2SK2663	
Q606		8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q607		8-729-922-37	TRANSISTOR 2SD2144S-TP-UVW	
Q608		8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q609		8-729-423-33	TRANSISTOR 2SC3311A-QRSTA	

RESISTOR

R101		1-216-073-00	RES-CHIP	10K	5% 1/10W
R103		1-216-295-91	SHORT		
R105		1-216-071-00	RES-CHIP	8.2K	5% 1/10W
R107		1-216-025-91	RES-CHIP	100	5% 1/10W
R108		1-216-025-91	RES-CHIP	100	5% 1/10W
R114		1-216-295-91	SHORT		
R204		1-216-081-00	RES-CHIP	22K	5% 1/10W
R205		1-216-085-00	RES-CHIP	33K	5% 1/10W
R206		1-216-295-91	SHORT		
R208		1-215-924-00	METAL OXIDE	15K	5% 3W
R215		1-216-113-00	RES-CHIP	470K	5% 1/10W
R409		1-216-295-91	SHORT		
R422		1-249-389-11	CARBON	4.7	5% 1/4W
R424		1-216-065-91	RES-CHIP	4.7K	5% 1/10W
R425		1-216-295-91	SHORT		
R436		1-216-065-91	RES-CHIP	4.7K	5% 1/10W
R437		1-216-065-91	RES-CHIP	4.7K	5% 1/10W
R440		1-216-097-91	RES-CHIP	100K	5% 1/10W
R443		1-216-033-00	RES-CHIP	220	5% 1/10W
R444		1-216-033-00	RES-CHIP	220	5% 1/10W
R445		1-216-073-00	RES-CHIP	10K	5% 1/10W
R447		1-216-065-91	RES-CHIP	4.7K	5% 1/10W
R454		1-216-025-91	RES-CHIP	100	5% 1/10W
R501		1-247-843-11	CARBON	3.3K	5% 1/4W
R502		1-215-892-11	METAL OXIDE	1K	5% 2W
R503		1-249-426-11	CARBON	5.6K	5% 1/4W
R506		1-215-886-11	METAL OXIDE	100	5% 2W
R507		1-260-320-11	CARBON	220	5% 1/2W
R508		1-247-863-91	CARBON	22K	5% 1/4W
R509		1-215-892-11	METAL OXIDE	1K	5% 2W
R510		1-249-411-11	CARBON	330	5% 1/4W
R513		1-215-913-11	METAL OXIDE	220	5% 3W
R516		1-249-429-11	CARBON	10K	5% 1/4W
R517		1-249-425-11	CARBON	4.7K	5% 1/4W
R518		1-249-427-11	CARBON	6.8K	5% 1/4W
R519		1-249-427-11	CARBON	6.8K	5% 1/4W
R520		1-215-861-00	METAL OXIDE	47	5% 1W
R521		1-249-411-11	CARBON	330	5% 1/4W
R522		1-249-415-11	CARBON	680	5% 1/4W
R523		1-216-073-00	RES-CHIP	10K	5% 1/10W
R524		1-249-429-11	CARBON	10K	5% 1/4W
R525	⚠	1-208-802-11	METAL CHIP	6.8K	0.50% 1/10W
			(KV-13FM12/13FM13/13FM14 ONLY)		
R525	⚠	1-216-069-00	RES-CHIP	6.8K	5% 1/10W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)		
R526		1-208-814-91	METAL CHIP	22K	0.50% 1/10W
R527		1-216-079-00	RES-CHIP	18K	5% 1/10W
R529		1-216-101-00	RES-CHIP	150K	5% 1/10W
R530		1-216-101-00	RES-CHIP	150K	5% 1/10W
R532		1-215-435-00	METAL	3.9K	1% 1/4W
R533		1-215-461-00	METAL	47K	1% 1/4W
R534		1-215-466-00	METAL	75K	1% 1/4W
R535		1-249-441-11	CARBON	100K	5% 1/4W
R536		1-216-355-11	METAL OXIDE	3.3	5% 1W
R538		1-215-890-11	METAL OXIDE	470	5% 2W
R539		1-249-385-11	CARBON	2.2	5% 1/4W
R540		1-249-425-11	CARBON	4.7K	5% 1/4W
R541		1-249-429-11	CARBON	10K	5% 1/4W
R542		1-215-910-00	METAL OXIDE	68	5% 3W
R543		1-247-887-00	CARBON	220K	5% 1/4W
R544		1-260-312-11	CARBON	47	5% 1/2W
R546		1-249-377-11	CARBON	0.47	5% 1/4W
R547		1-215-892-11	METAL OXIDE	1K	5% 2W
R549		1-260-288-11	CARBON	0.47	5% 1/2W
R550		1-260-288-11	CARBON	0.47	5% 1/2W
R552		1-215-910-00	METAL OXIDE	68	5% 3W
R554	⚠	1-249-429-11	CARBON	10K	5% 1/4W
R555	⚠	1-247-895-91	CARBON	470K	5% 1/4W
R556	⚠	1-249-414-11	CARBON	560	5% 1/4W
R557	⚠	1-247-895-91	CARBON	470K	5% 1/4W
R558	⚠	1-216-097-91	RES-CHIP	100K	5% 1/10W
R559	⚠	1-216-073-00	RES-CHIP	10K	5% 1/10W
R560	⚠	1-215-902-11	METAL OXIDE	47K	5% 1W
R561	⚠	1-215-416-00	METAL	620	1% 1/4W
R562	⚠	1-208-806-11	METAL CHIP	10K	0.50% 1/10W
R563	⚠	1-249-441-11	CARBON	100K	5% 1/4W
⋈R564	⚠	1-216-111-00	RES-CHIP	390K	5% 1/10W
R565	⚠	1-249-429-11	CARBON	10K	5% 1/4W
R566	⚠	1-216-073-00	RES-CHIP	10K	5% 1/10W
R567	⚠	1-216-073-00	RES-CHIP	10K	5% 1/10W
R568		1-215-882-00	METAL OXIDE	22	5% 2W
R571		1-216-065-91	RES-CHIP	4.7K	5% 1/10W
R572		1-216-065-91	RES-CHIP	4.7K	5% 1/10W
R601	⚠	1-219-513-11	CARBON	4.7M	5% 1/2W
			(KV-13FM12/13FM13/13FM14 ONLY)		
R602	⚠	1-249-389-11	CARBON	4.7	5% 1/4W
R603		1-215-485-00	METAL	470K	1% 1/4W
R605	⚠	1-205-998-11	CEMENTED	1	5% 10W
			(KV-13FM12/13FM13/13FM14 ONLY)		

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REF. NO.		PART NO.	DESCRIPTION			REMARK
R605	⚠	1-202-968-11	CEMENTED	1.2	5%	10W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R606	⚠	1-205-998-11	CEMENTED	1	5%	10W
			(KV-13FM12/13FM13/13FM14 ONLY)			
R606	⚠	1-202-968-11	CEMENTED	1.2	5%	10W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R607		1-215-859-00	METAL OXIDE	22	5%	1W
R608		1-240-205-11	CARBON	22M	5%	1/2W
R609		1-216-049-91	RES-CHIP	1K	5%	1/10W
R610		1-216-073-00	RES-CHIP	10K	5%	1/10W
R611		1-216-089-91	RES-CHIP	47K	5%	1/10W
R612		1-216-045-00	RES-CHIP	680	5%	1/10W
R613	⚠	1-219-512-11	CARBON	2.2M	5%	1/2W
R614		1-249-413-11	CARBON	470	5%	1/4W
R615	⚠	1-218-265-11	METAL	8.2M	5%	1W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R616	⚠	1-260-302-51	CARBON	6.8	5%	1/2W
R617		1-216-009-91	RES-CHIP	22	5%	1/10W
R621	⚠	1-202-968-11	CEMENTED	1.2	5%	10W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R626	⚠	1-220-926-11	FUSIBLE	0.47	10%	1/2W
R627		1-215-483-00	METAL	390K	1%	1/4W
			(KV-13FM12/13FM13/13FM14 ONLY)			
R627		1-215-479-00	METAL	270K	1%	1/4W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R628		1-215-479-00	METAL	270K	1%	1/4W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R630		1-249-421-11	CARBON	2.2K	5%	1/4W
R632	⚠	1-216-361-21	METAL OXIDE	0.22	5%	2W
R633		1-249-415-11	CARBON	680	5%	1/4W
R634		1-216-073-00	RES-CHIP	10K	5%	1/10W
R635		1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R637		1-216-485-11	METAL OXIDE	5.6K	5%	3W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R638		1-249-399-11	CARBON	33	5%	1/4W
			(KV-13FM12/13FM13/13FM14 ONLY)			
R638		1-249-402-11	CARBON	56	5%	1/4W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R639		1-249-421-11	CARBON	2.2K	5%	1/4W
R640		1-249-417-11	CARBON	1K	5%	1/4W
R641	⚠	1-216-369-00	METAL OXIDE	1	5%	2W
R642		1-216-089-91	RES-CHIP	47K	5%	1/10W
R643		1-249-419-11	CARBON	1.5K	5%	1/4W
R644		1-247-843-11	CARBON	3.3K	5%	1/4W
R645		1-215-898-11	METAL OXIDE	10K	5%	2W
R646		1-249-419-11	CARBON	1.5K	5%	1/4W
R648		1-215-908-00	METAL OXIDE	33	5%	3W
R650		1-216-387-11	METAL OXIDE	0.68	5%	3W
R653		1-216-049-91	RES-CHIP	1K	5%	1/10W
R655		1-216-049-91	RES-CHIP	1K	5%	1/10W
R656		1-249-429-11	CARBON	10K	5%	1/4W
R658		1-216-387-11	METAL OXIDE	0.68	5%	3W
R659		1-215-857-11	METAL OXIDE	10	5%	1W
R660	⚠	1-215-924-00	METAL OXIDE	15K	5%	3W
			(KV-13FM12/13FM13/13FM14 ONLY)			
R660	⚠	1-216-485-11	METAL OXIDE	5.6K	5%	3W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R661		1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R662		1-216-485-11	METAL OXIDE	5.6K	5%	3W
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)			
R663		1-216-081-00	RES-CHIP	22K	5%	1/10W
R2007		1-249-413-11	CARBON	470	5%	1/4W
			(KV-14FM12/C/14FM14 ONLY)			

RELAY

RY601	⚠	1-755-198-11	RELAY
RY602	⚠	1-755-266-11	RELAY, AC POWER

SWITCH

SW502		1-572-707-11	SWITCH, LEVER

TRANSFORMER

T501	⚠	1-435-374-11	TRANSFORMER, FERRITE (HDT)
T505	⚠	1-453-339-11	FBT ASSY NX-1912//M3E4
T602	⚠	1-431-419-11	TRANSFORMER, LINE FILTER
			(KV-13FM12/13FM13/13FM14 ONLY)
T602	⚠	1-426-717-11	TRANSFORMER, LINE FILTER (LFT)
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)
T603	⚠	1-433-806-11	TRANSFORMER, REGULAT
			(KV-13FM12/13FM13/13FM14 ONLY)
T603	⚠	1-433-807-11	TRANSFORMER, REGULATOR
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)
T604	⚠	1-431-852-11	TRANSFORMER, CONVERTER (SRT)

THERMISTOR

TH601	⚠	1-803-586-11	THERMISTOR, NTC

THERMISTOR

THP601	⚠	1-809-539-11	THERMISTOR, POSITIVE
			(KV-13FM12/13FM13/13FM14 ONLY)
THP601	⚠	1-803-540-11	THERMISTOR
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)

TUNER

TU101	⚠	8-598-501-00	TUNER, FSS BTF-FA402

VARISTOR

VDR601	⚠	1-803-585-11	VARISTOR ENE271D-10A
			(KV-13FM12/13FM13/13FM14 ONLY)
VDR601	⚠	1-803-967-11	VARISTOR (ENE621D-14A)
			(ALL EXCEPT KV-13FM12/13FM13/13FM14)

CB HC

Note:

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REF. NO.		PART NO.	DESCRIPTION	REMARK

CB

	*	A-1332-062-A	CB (VAR) MOUNTED PC BOARD	
		4-382-854-11	SCREW (M3X10), P, SW (+)	

CAPACITOR

C701		1-104-664-11	ELECT	47µF	20% 25V
C701		1-131-769-91	ELECT	47µF	20% 25V
C702		1-136-165-00	MYLAR	0.1µF	5% 50V
C703		1-104-664-11	ELECT	47µF	20% 25V
C703		1-131-769-91	ELECT	47µF	20% 25V
C704		1-107-649-11	ELECT	2.2µF	20% 250V
C704		1-131-848-91	ELECT	2.2µF	20% 250V
C705		1-107-652-11	ELECT	10µF	20% 250V
C705		1-131-851-91	ELECT	10µF	20% 250V
C707		1-162-114-00	CERAMIC	0.0047µF	2KV
C708		1-136-165-00	MYLAR	0.1µF	5% 50V
C709		1-126-934-11	ELECT	220µF	20% 16V
C709		1-131-764-91	ELECT	220µF	20% 16V
C710		1-126-964-11	ELECT	10µF	20% 50V
C710		1-131-789-91	ELECT	10µF	20% 50V

CONNECTOR

CN701	*	1-564-506-11	PLUG, CONNECTOR 3P
CN702		1-695-915-11	TAB (CONTACT)
CN704		1-784-281-11	HOUSING, CONNECTOR 1P
CN705	*	1-564-512-11	PLUG, CONNECTOR 9P
CN706	*	1-564-509-11	PLUG, CONNECTOR 6P

DIODE

D701	8-719-901-83	DIODE 1SS83TD
D702	8-719-901-83	DIODE 1SS83TD
D703	8-719-901-83	DIODE 1SS83TD
D704	8-719-302-43	DIODE RGP10GPKG23

IC

IC701	8-759-803-42	IC LA6500-FA
IC702	8-759-562-43	IC TDA6108JF/N1B

JACK

J701	⚠	1-451-470-21	SOCKET, CRT	

COIL

L701		1-408-613-31	INDUCTOR	68µH	

TRANSISTOR

Q700	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA
Q701	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA

RESISTOR

R700	1-247-863-91	CARBON	22K	5%	1/4W
R701	1-249-429-11	CARBON	10K	5%	1/4W
R702	1-247-815-91	CARBON	220	5%	1/4W
R703	1-247-807-31	CARBON	100	5%	1/4W
R704	1-249-421-11	CARBON	2.2K	5%	1/4W
R705	1-249-429-11	CARBON	10K	5%	1/4W
R706	1-249-381-11	CARBON	1	5%	1/4W
R707	1-249-383-11	CARBON	1.5	5%	1/4W
R708	1-247-807-31	CARBON	100	5%	1/4W
R709	1-247-807-31	CARBON	100	5%	1/4W
R710	1-247-807-31	CARBON	100	5%	1/4W
R711	1-260-099-11	CARBON	1K	5%	1/2W
R712	1-260-099-11	CARBON	1K	5%	1/2W
R713	1-260-099-11	CARBON	1K	5%	1/2W
R714	1-260-087-11	CARBON	100	5%	1/2W
R715	1-260-132-11	CARBON	560K	5%	1/2W
R716	1-260-123-11	CARBON	100K	5%	1/2W
R717	1-216-373-11	METAL OXIDE	2.2	5%	2W
R719	1-215-888-00	METAL OXIDE	220	5%	2W
R720	1-249-421-11	CARBON	2.2K	5%	1/4W
R721	1-249-421-11	CARBON	2.2K	5%	1/4W

VARIABLE RESISTOR

RV701	1-241-656-11	RES, ADJ, METAL FILM 110M

HC

	*	A-1372-814-A	HC (VAR) MOUNTED PC BOARD (ALL EXCEPT KV-14FM12A)
	*	A-1372-813-A	HC (VAR) MOUNTED PC BOARD (KV-14FM12A ONLY)

CONNECTOR

CN2201	*	1-564-522-11	PLUG, CONNECTOR 7P

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HC HD HZ MB

REF. NO.	PART NO.	DESCRIPTION			REMARK
	DIODE				
D2201	8-719-057-09	DIODE LNJ801LPDJA			
D2202	8-719-057-09	DIODE LNJ801LPDJA (KV-14FM12A ONLY)			
	IC				
IC2201	8-742-211-20	HYB IC SBX3071-71			
	RESISTOR				
R2201	1-249-415-11	CARBON	680	5%	1/4W
R2202	1-249-416-11	CARBON	820	5%	1/4W
R2203	1-249-421-11	CARBON	2.2K	5%	1/4W
R2204	1-249-427-11	CARBON	6.8K	5%	1/4W
R2205	1-249-413-11	CARBON	470	5%	1/4W
R2206	1-249-413-11	CARBON (KV-14FM12A ONLY)	470	5%	1/4W
R2207	1-247-807-31	CARBON	100	5%	1/4W
	SWITCH				
S2201	1-762-196-21	SWITCH, TACTILE			
S2202	1-762-196-21	SWITCH, TACTILE			
S2203	1-762-196-21	SWITCH, TACTILE			
S2204	1-762-196-21	SWITCH, TACTILE			
S2205	1-762-196-21	SWITCH, TACTILE			
S2206	1-762-196-21	SWITCH, TACTILE			

HD

*	A-1372-816-A	HD (COM) MOUNTED PC BOARD	
	CAPACITOR		
C2211	1-126-960-11	ELECT	1µF 20% 50V
C2212	1-126-940-11	ELECT	330µF 20% 25V
C2222	1-104-664-11	ELECT	47µF 20% 25V
	CONNECTOR		
CN2210*	1-564-523-11	PLUG, CONNECTOR 8P	
CN2211*	1-564-518-11	PLUG, CONNECTOR 3P	
CN2212*	1-564-518-11	PLUG, CONNECTOR 3P	
CN2213*	1-564-522-11	PLUG, CONNECTOR 7P	
	DIODE		
D2211	8-719-108-12	DIODE RD9.1EW-T1	
D2212	8-719-110-17	DIODE MTZJ-T-77-10B	
D2213	8-719-924-13	DIODE MTZJ-T-77-22B	
	JACK		
J2211	1-794-266-21	JACK, PIN 2P	
J2212	1-568-267-21	JACK	
	RESISTOR		
R2211	1-249-419-11	CARBON	1.5K 5% 1/4W
R2212	1-249-421-11	CARBON	2.2K 5% 1/4W
R2213	1-249-427-11	CARBON	6.8K 5% 1/4W
R2215	1-247-895-91	CARBON	470K 5% 1/4W
R2216	1-249-425-11	CARBON	4.7K 5% 1/4W
R2217	1-247-815-91	CARBON	220 5% 1/4W
R2219	1-249-425-11	CARBON	4.7K 5% 1/4W
	SWITCH		
S2211	1-692-431-21	SWITCH, TACTILE	
S2212	1-692-431-21	SWITCH, TACTILE	
S2213	1-692-431-21	SWITCH, TACTILE	
S2214	1-692-431-21	SWITCH, TACTILE	

HZ

*	A-1372-117-A	MOUNTED PWB, HZ (KV-14FM12A ONLY)	
	CONNECTOR		
CN901 *	1-580-843-11	PIN, CONNECTOR (POWER)	
CN902 *	1-580-843-11	PIN, CONNECTOR (POWER)	
	SWITCH		
S901 ⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	

MB

*	A-1304-197-A	MB (VAR) MOUNTED PC BOARD (ALL EXCEPT KV-14FM12A)	
*	A-1304-195-A	MB (VAR) MOUNTED PC BOARD (KV-14FM12A ONLY)	
	CAPACITOR		
C1005	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C1008	1-126-964-11	ELECT	10µF 20% 50V
C1010	1-163-035-00	CERAMIC CHIP	0.047µF 50V
C1011	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
C1012	1-126-960-11	ELECT	1µF 20% 50V
C1013	1-163-009-11	CERAMIC CHIP	0.001µF 10% 50V
C1014	1-130-495-00	MYLAR	0.1µF 5% 50V
C1015	1-163-231-11	CERAMIC CHIP	15PF 5% 50V

MB

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REF. NO.	PART NO.	DESCRIPTION	REMARK		
C1016	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C1018	1-126-960-11	ELECT	1µF	20%	50V
C1019	1-104-664-11	ELECT	47µF	20%	25V
C1020	1-164-161-11	CERAMIC CHIP	0.0022µF	10%	50V
C1021	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1022	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C1023	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1024	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1026	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1027	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1028	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1029	1-164-161-11	CERAMIC CHIP	0.0022µF	10%	50V
C1030	1-126-963-11	ELECT	4.7µF	20%	50V
C1031	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1032	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C1034	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1035	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C1041	1-126-941-11	ELECT	470µF	20%	25V
C1042	1-164-161-11	CERAMIC CHIP	0.0022µF	10%	50V
C1043	1-163-809-11	CERAMIC CHIP	0.047µF	10%	25V
C1048	1-137-194-81	MYLAR	0.47µF	5%	50V
C1049	1-163-017-00	CERAMIC CHIP	0.0047µF	10%	50V
C1050	1-163-037-11	CERAMIC CHIP	0.022µF	10%	50V
C1053	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C1054	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1055	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C1056	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1058	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1060	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1066	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1068	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1071	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1072	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1073	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1074	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C1075	1-126-941-11	ELECT	470µF	20%	25V
C1076	1-126-959-11	ELECT	0.47µF	20%	50V
C1077	1-126-964-11	ELECT	10µF	20%	50V
C1099	1-163-009-11	CERAMIC CHIP	0.001µF	10%	50V
C1304	1-126-959-11	ELECT	0.47µF	20%	50V
C1305	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1306	1-126-933-11	ELECT	100µF	20%	16V
C1307	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1308	1-126-933-11	ELECT	100µF	20%	16V
C1309	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1310	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1311	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1313	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1315	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1320	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1321	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1322	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1323	1-126-933-11	ELECT	100µF	20%	16V
C1324	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1325	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C1326	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1327	1-126-933-11	ELECT	100µF	20%	16V
C1328	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C1329	1-163-010-11	CERAMIC CHIP	0.0012µF	10%	50V
C1330	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C1331	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1332	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1334	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1335	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1336	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1339	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1340	1-126-963-11	ELECT	4.7µF	20%	50V
C1341	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1342	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1343	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1344	1-126-941-11	ELECT	470µF	20%	25V
C1345	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1349	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1350	1-163-021-91	CERAMIC CHIP	0.01µF	10%	50V
C1351	1-126-963-11	ELECT	4.7µF	20%	50V
C1352	1-104-664-11	ELECT	47µF	20%	25V
C1353	1-126-964-11	ELECT	10µF	20%	50V
C1354	1-137-194-81	MYLAR (ALL EXCEPT KV-14FM12A)	0.47µF	5%	50V
C1354	1-136-169-00	MYLAR (KV-14FM12A ONLY)	0.22µF	5%	50V
C1355	1-126-767-11	ELECT	1000µF	20%	16V
C1356	1-163-133-00	CERAMIC CHIP (ALL EXCEPT KV-14FM12A)	470PF	5%	50V
C1356	1-163-259-91	CERAMIC CHIP (KV-14FM12A ONLY)	220PF	5%	50V
C1357	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1358	1-126-963-11	ELECT	4.7µF	20%	50V
C1359	1-126-964-11	ELECT	10µF	20%	50V
C1361	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C1364	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C1363	1-163-233-11	CERAMIC CHIP (KV-14FM12A ONLY)	18PF	5%	50V
C1365	1-163-233-11	CERAMIC CHIP (KV-14FM12A ONLY)	18PF	5%	50V
C1366	1-126-964-11	ELECT	10µF	20%	50V
C1375	1-163-034-00	CERAMIC CHIP	0.033µF		50V
C1376	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C1377	1-126-960-11	ELECT	1µF	20%	50V

MB

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REF. NO.	PART NO.	DESCRIPTION			
C1378	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1379	1-163-021-91	CERAMIC CHIP (ALL EXCEPT KV-14FM12A)	0.01µF	10%	50V
C1379	1-163-017-00	CERAMIC CHIP (KV-14FM12A ONLY)	0.0047µF	10%	50V
C1380	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C1381	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1382	1-126-964-11	ELECT	10µF	20%	50V
C1385	1-126-964-11	ELECT	10µF	20%	50V
C1386	1-163-038-91	CERAMIC CHIP	0.1µF		25V
C1387	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C1392	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C1394	1-104-664-11	ELECT	47µF	20%	25V
C1399	1-163-243-11	CERAMIC CHIP	47PF	5%	50V

CONNECTOR

CN1001*	1-564-511-11	PLUG, CONNECTOR 8P
CN1002*	1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P
CN1003	1-573-301-21	CONNECTOR, BOARD TO BOARD 20P
CN1004	1-573-301-21	CONNECTOR, BOARD TO BOARD 20P
CN1303	1-900-805-12	CONNECTOR ASSY 9P BOARD

DIODE

D1001	8-719-921-44	DIODE MTZJ-T-77-5.1C
D1003	8-719-976-99	DIODE UDZ-TE-17-5.1B
D1005	8-719-109-89	DIODE MTZJ-T-77-5.6C
D1006	8-719-073-01	DIODE MA111-TX
D1010	8-719-977-22	DIODE UDZ-TE-17-9.1B
D1011	8-719-073-01	DIODE MA111-TX
D1012	8-719-073-01	DIODE MA111-TX
D1013	8-719-977-22	DIODE UDZ-TE-17-9.1B
D1014	8-719-073-01	DIODE MA111-TX
D1301	8-719-914-44	DIODE DAP202K-T-146
D1310	8-719-976-99	DIODE UDZ-TE-17-5.1B

FERRITE BEAD

FB1302	1-412-911-11	FERRITE	0µH

FILTER

FL1301	1-239-847-11	FILTER, LOW PASS
FL1302	1-239-847-11	FILTER, LOW PASS
FL1303	1-239-847-11	FILTER, LOW PASS

IC

IC1001	8-759-670-42	IC M37273MF-259SP
IC1003	8-759-527-77	IC M24C16-MN6T
IC1301 ⚠	8-752-092-17	IC CXA2131AS (ALL EXCEPT KV-14FM12A)
IC1301 ⚠	8-752-090-40	IC CXA2135S (KV-14FM12A ONLY)
IC1302	8-759-655-75	IC TC90A49P
IC1304	8-759-353-00	IC NJM2534M(TE2)
IC1305	8-759-658-02	IC BA3993F

CHIP CONDUCTOR

JR0002	1-216-295-91	SHORT
JR1001	1-216-295-91	SHORT
JR1002	1-216-295-91	SHORT
JR1005	1-216-295-91	SHORT
JR1006	1-216-295-91	SHORT
JR1010	1-216-295-91	SHORT
JR1015	1-216-295-91	SHORT
JR1016	1-216-295-91	SHORT
JR1017	1-216-295-91	SHORT
JR1018	1-216-295-91	SHORT
JR1019	1-216-295-91	SHORT
JR1083	1-216-295-91	SHORT
JR1088	1-216-295-91	SHORT
JR1307	1-216-295-91	SHORT
JR1310	1-216-295-91	SHORT
JR1313	1-216-295-91	SHORT
JR1314	1-216-295-91	SHORT
JR1315	1-216-295-91	SHORT
JR1316	1-216-295-91	SHORT
JR1317	1-216-295-91	SHORT
JR1320	1-216-295-91	SHORT
JR1321	1-216-295-91	SHORT
JR1322	1-216-295-91	SHORT
JR1323	1-216-295-91	SHORT
JR1324	1-216-295-91	SHORT

COIL

L1001	1-412-032-11	INDUCTOR CHIP	100µH
L1003	1-412-032-11	INDUCTOR CHIP	100µH
L1004	1-408-963-11	INDUCTOR	2.7µH
L1302	1-412-029-11	INDUCTOR CHIP	10µH
L1303	1-412-029-11	INDUCTOR CHIP	10µH
L1304	1-412-029-11	INDUCTOR CHIP	10µH
L1305	1-412-029-11	INDUCTOR CHIP	10µH
L1310	1-412-029-11	INDUCTOR CHIP	10µH
L1311	1-412-031-11	INDUCTOR CHIP	47µH
L1315	1-412-029-11	INDUCTOR CHIP	10µH

MB

Note:

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Note:

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REF. NO.	PART NO.	DESCRIPTION	REMARK
	TRANSISTOR		
Q1001	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1002	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1003	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1009	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1010	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1011	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1301	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1302	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1306	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1307	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1308	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1310	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1311	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1312	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1313	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1315	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1316	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1317	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1325	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1326	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1327	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1328	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1329	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1330	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1331	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1332	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1336	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX	
Q1350	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
Q1354	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX	
	RESISTOR		
R1001	1-216-089-91	RES-CHIP 47K 5% 1/10W	
R1016	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R1017	1-216-025-91	RES-CHIP 100 5% 1/10W	
R1018	1-249-429-11	CARBON 10K 5% 1/4W	
R1019	1-216-045-00	RES-CHIP 680 5% 1/10W	
R1020	1-216-097-91	RES-CHIP 100K 5% 1/10W	
R1021	1-216-121-91	RES-CHIP 1M 5% 1/10W	
R1022	1-216-073-00	RES-CHIP 10K 5% 1/10W	
R1023	1-216-073-00	RES-CHIP 10K 5% 1/10W	
R1024	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1025	1-208-814-91	METAL CHIP 22K 0.50% 1/10W	
R1026	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1027	1-216-041-00	RES-CHIP 470 5% 1/10W	
R1028	1-216-045-00	RES-CHIP 680 5% 1/10W	
R1029	1-216-113-00	RES-CHIP 470K 5% 1/10W	
R1030	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R1031	1-216-041-00	RES-CHIP 470 5% 1/10W	
R1032	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1033	1-216-081-00	RES-CHIP 22K 5% 1/10W	
R1034	1-216-043-91	RES-CHIP 560 5% 1/10W	
R1035	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R1036	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1037	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1038	1-216-025-91	RES-CHIP 100 5% 1/10W	
R1040	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1041	1-216-073-00	RES-CHIP 10K 5% 1/10W	
R1042	1-249-414-11	CARBON 560 5% 1/4W	
R1043	1-216-071-00	RES-CHIP 8.2K 5% 1/10W	
R1044	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1045	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1046	1-249-425-11	CARBON 4.7K 5% 1/4W	
R1047	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1048	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1049	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1050	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1052	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1053	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1054	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1055	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R1056	1-216-081-00	RES-CHIP 22K 5% 1/10W	
R1057	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R1058	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
R1059	1-247-815-91	CARBON 220 5% 1/4W	
R1060	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
R1061	1-247-815-91	CARBON 220 5% 1/4W	
R1062	1-216-073-00	RES-CHIP 10K 5% 1/10W	
R1063	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1064	1-216-025-91	RES-CHIP 100 5% 1/10W	
R1065	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1066	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1067	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1068	1-216-025-91	RES-CHIP 100 5% 1/10W	
R1069	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1070	1-216-033-00	RES-CHIP 220 5% 1/10W	
R1071	1-208-806-11	METAL CHIP 10K 0.50% 1/10W	
R1072	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1073	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1074	1-216-355-11	METAL OXIDE 3.3 5% 1W	
R1075	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1076	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1077	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R1078	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R1079	1-216-069-00	RES-CHIP 6.8K 5% 1/10W	
R1080	1-216-069-00	RES-CHIP 6.8K 5% 1/10W	
R1081	1-216-069-00	RES-CHIP 6.8K 5% 1/10W	
R1082	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	

MB

Note:

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Note:

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REF. NO.	PART NO.	DESCRIPTION		REMARK	
R1084	1-216-045-00	RES-CHIP	680	5%	1/10W
R1085	1-216-045-00	RES-CHIP	680	5%	1/10W
R1086	1-216-045-00	RES-CHIP	680	5%	1/10W
R1087	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R1090	1-216-033-00	RES-CHIP	220	5%	1/10W
R1095	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R1098	1-216-033-00	RES-CHIP	220	5%	1/10W
R1099	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R1103	1-216-295-91	SHORT			
R1104	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1105	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1106	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1109	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1110	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R1111	1-216-085-00	RES-CHIP	33K	5%	1/10W
R1300	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1301	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R1302	1-216-041-00	RES-CHIP	470	5%	1/10W
R1303	1-216-025-91	RES-CHIP	100	5%	1/10W
R1304	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1306	1-216-033-00	RES-CHIP	220	5%	1/10W
R1308	1-216-033-00	RES-CHIP	220	5%	1/10W
R1310	1-216-025-91	RES-CHIP	100	5%	1/10W
R1311	1-216-047-91	RES-CHIP	820	5%	1/10W
R1312	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R1313	1-216-033-00	RES-CHIP	220	5%	1/10W
R1314	1-216-022-00	RES-CHIP	75	5%	1/10W
R1315	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R1316	1-216-295-91	SHORT			
R1319	1-216-022-00	RES-CHIP	75	5%	1/10W
R1320	1-216-025-91	RES-CHIP	100	5%	1/10W
R1322	1-216-081-00	RES-CHIP	22K	5%	1/10W
R1323	1-216-025-91	RES-CHIP	100	5%	1/10W
R1325	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1326	1-216-043-91	RES-CHIP	560	5%	1/10W
R1327	1-216-025-91	RES-CHIP	100	5%	1/10W
R1328	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R1329	1-216-091-00	RES-CHIP	56K	5%	1/10W
R1330	1-216-081-00	RES-CHIP	22K	5%	1/10W
R1331	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1332	1-216-043-91	RES-CHIP	560	5%	1/10W
R1333	1-216-033-00	RES-CHIP	220	5%	1/10W
R1334	1-216-025-91	RES-CHIP	100	5%	1/10W
R1335	1-216-025-91	RES-CHIP	100	5%	1/10W
R1336	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R1338	1-216-091-00	RES-CHIP	56K	5%	1/10W
R1342	1-216-025-91	RES-CHIP	100	5%	1/10W
R1344	1-216-025-91	RES-CHIP	100	5%	1/10W
R1345	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1346	1-216-033-00	RES-CHIP	220	5%	1/10W
R1347	1-216-025-91	RES-CHIP	100	5%	1/10W
R1348	1-216-025-91	RES-CHIP	100	5%	1/10W
R1349	1-216-295-91	SHORT (KV-14FM12A ONLY)			
R1350	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1351	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R1352	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1355	1-216-025-91	RES-CHIP	100	5%	1/10W
R1356	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R1357	1-216-043-91	RES-CHIP	560	5%	1/10W
R1358	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1359	1-216-025-91	RES-CHIP	100	5%	1/10W
R1360	1-216-041-00	RES-CHIP	470	5%	1/10W
R1361	1-216-295-91	SHORT			
R1362	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1363	1-216-043-91	RES-CHIP	560	5%	1/10W
R1364	1-216-025-91	RES-CHIP	100	5%	1/10W
R1365	1-216-025-91	RES-CHIP	100	5%	1/10W
R1366	1-216-025-91	RES-CHIP	100	5%	1/10W
R1367	1-216-025-91	RES-CHIP	100	5%	1/10W
R1368	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1369	1-259-884-11	CARBON (KV-14FM12A ONLY)	4.7M	5%	1/4W
R1371	1-216-295-91	SHORT (KV-14FM12A ONLY)			
R1372	1-216-295-91	SHORT			
R1373	1-216-295-91	SHORT (KV-14FM12A ONLY)			
R1374	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1375	1-216-295-91	SHORT			
R1376	1-216-295-91	SHORT			
R1378	1-216-295-91	SHORT			
R1379	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1380	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1381	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1382	1-216-097-91	RES-CHIP	100K	5%	1/10W
R1383	1-216-097-91	RES-CHIP	100K	5%	1/10W
R1384	1-216-097-91	RES-CHIP	100K	5%	1/10W
R1385	1-216-113-00	RES-CHIP	470K	5%	1/10W
R1386	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1387	1-216-091-00	RES-CHIP (ALL EXCEPT KV-14FM12A)	56K	5%	1/10W
R1387	1-216-085-00	RES-CHIP (KV-14FM12A ONLY)	33K	5%	1/10W
R1388	1-216-117-00	RES-CHIP	680K	5%	1/10W
R1389	1-216-071-00	RES-CHIP (ALL EXCEPT KV-14FM12A)	8.2K	5%	1/10W
R1389	1-216-077-91	RES-CHIP (KV-14FM12A ONLY)	15K	5%	1/10W

MB

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R1390	1-216-025-91	RES-CHIP	100	5%	1/10W
R1391	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1392	1-216-295-91	SHORT			
R1393	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R1394	1-216-033-00	RES-CHIP	220	5%	1/10W
R1395	1-216-033-00	RES-CHIP	220	5%	1/10W
R1396	1-216-033-00	RES-CHIP	220	5%	1/10W
R1397	1-216-033-00	RES-CHIP	220	5%	1/10W
R1398	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1399	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1400	1-216-295-91	SHORT			
R1401	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1402	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1403	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1404	1-216-073-00	RES-CHIP	10K	5%	1/10W
R1406	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1407	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1409	1-216-043-91	RES-CHIP	560	5%	1/10W
R1410	1-216-295-91	SHORT (ALL EXCEPT KV-14FM12A)			
R1411	1-216-033-00	RES-CHIP	220	5%	1/10W
R1413	1-216-091-00	RES-CHIP	56K	5%	1/10W
R1414	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1415	1-216-049-91	RES-CHIP	1K	5%	1/10W
R1416	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R1417	1-216-035-00	RES-CHIP	270	5%	1/10W
R1418	1-216-045-00	RES-CHIP	680	5%	1/10W
R1419	1-216-295-91	SHORT			
R1442	1-216-107-00	RES-CHIP	270K	5%	1/10W

CRYSTAL

X1001	1-767-487-11	VIBRATOR, CRYSTAL
X1303	1-579-973-11	VIBRATOR, CRYSTAL (KV-14FM12A ONLY)
X1304	1-567-505-11	OSCILLATOR, CRYSTAL
X1305	1-579-972-11	VIBRATOR, CRYSTAL (KV-14FM12A ONLY)

REF. NO.	PART NO.	DESCRIPTION	REMARK

ACCESSORIES AND PACKAGING

	4-041-254-01	BAG, PROTECTION
*	4-075-183-01	CARTON, INDIVIDUAL (KV-13FM12/13FM13/13FM14 ONLY)
*	4-075-510-01	CARTON, INDIVIDUAL (ALL EXCEPT KV-13FM12/13FM13/13FM14)
*	4-075-174-01	CUSHION ASSY, UPPER
*	4-075-175-01	CUSHION ASSY, LOWER
	4-075-509-21	MANUAL, INSTRUCTION (KV-13FM12/13FM13/13FM14 ONLY)
	4-075-509-41	MANUAL, INSTRUCTION (ALL EXCEPT KV-13FM12/13FM13/13FM14)
	1-501-730-41	ANTENNA, TELESCOPIC (ALL EXCEPT KV-13FM12/13FM13/13FM14)
	1-417-182-11	CONVERTER (EAC-25) (ALL EXCEPT KV-13FM12/13FM13/13FM14)

REMOTE COMMANDER

	1-418-853-11	REMOTE COMMANDER (RM-Y172)
	3-709-322-01	BATTERY COVER (RM-Y172)

NOTES:

NOTES:

Sony Corporation
Sony Technology Center
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Service Promotion Dept.

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